



MEMORANDUM

TO: Cooperative Forecasting and Data Subcommittee, Members
FROM: John Kent, Regional Planner and Greg Goodwin, Regional Planner
SUBJECT: Cooperative Forecasting Program – Employment Estimates and Projections
DATE: November 13, 2018

This memorandum was originally presented to the Cooperative Forecasting and Data Subcommittee on September 11, 2018. This updated version reflects feedback from Shawn Kimberly of BMC and Mark Moran of COG/TPB.

The purpose of this memorandum is to identify and highlight some of the current practices in cooperative forecasting for understanding the relationship between available small area employment data and COG's employment categories. Drawing from earlier COG research, COG member-jurisdictions, Metropolitan Planning Organizations around the country, this document will highlight current practices and methods that are most relevant to the COG forecasting process and needs.

The COG staff has been asked by members of the Cooperative Forecasting and Data Subcommittee to re-examine the relationship between the North American Industrial Classification System (NAICS) and the standard four employment categories (Office, Retail, Industrial, and Other) used in the COG/TPB regional travel demand forecasting model. Generally, the approach of using NAICS to allocate jobs to the four employment categories is useful only for estimating a base-year, when used in conjunction with a data source, such as a QCEW or Infogroup employment file. COG recognizes the importance of our local partners in developing the Cooperative Forecasts. While COG offers guidance for estimating base-year employment data,¹ COG understands that every jurisdiction uses additional data and insight to develop employment estimates and forecasts. The forecast years are just as important as base-year estimates and are based on member-jurisdiction Comprehensive Plans, zoning, and other local land use expertise.

BACKGROUND

Employment is a major component of the COG Cooperative Forecasting process. TAZ-level employment, household and population data from the Cooperative Forecast is used by Transportation Planning Board (TPB) staff as inputs to the travel demand forecasting model. Member-jurisdictions submit to COG both base-year employment and 30 years of forecasted employment at five-year intervals. Employment in the forecast is divided into four land use categories: Office, Retail, Industrial, and Other. The four unique employment types are used in the

¹ Nicole McCall to Cooperative Forecasting and Data Subcommittee, "Update to Suggested Baseline Employment Estimates," Memorandum, July 10, 2018, <https://www.mwco.org/file.aspx?D=zYmpy3d50AfsplWyPJe%2b%2fYMwrBIG2IbZOBGRQiDBjnY%3d&A=s e1QZetS720KuHyLzYNei%2bInbMj27BsbL8k4Oqsw6oE%3d>.

TPB travel demand forecasting model to assign different traffic generation and attraction rates, which are a function of trip purpose and land use. For example, home-based work (HBW) trip attraction rates are a function of total employment. By contrast, home-based shop (HBS) trip attraction rates are a function of total population and retail employment.² In the mid-1980s, the auto trip attraction rate for HBS trips in the suburbs was 6 trips per job.³ In the current travel model (Ver. 2.3), however, the comparable factor is now between 2 and 3.⁴ Also, although it can vary by zone, at the regional level, HBS trips account for only about 16% of the 19.9 million daily person trips.⁵

Readily available employment data is typically classified under two major standards. NAICS classifies industries based upon products or services. The Standard Occupational Classification (SOC) system classifies workers based upon the job performed. The SOC description of an individual worker's employment duties is often a better indicator of commuting and other transportation requirements than the NAICS industrial sector in which the worker's employer participates. Despite this, NAICS-based data is primarily used because the best data available to employment forecasters—from the Bureau of Labor Statistic's Quarterly Census of Employment and Wages (QCEW)—is classified by NAICS code.

EXISTING METHODS AND GUIDANCE FOR ALLOCATING EMPLOYMENT DATA

1985 COG Technical Memorandum: Relationship Between Employment by SIC Code and Employment by Land Use Type

During the mid-1980's, COG prepared a technical memorandum based on research by the Maryland-National Capital Park and Planning Commission in Montgomery County to allocate employment by Standard Industrial Classification (SIC) system to four employment categories (Industrial, Office, Retail and Other).⁶ The purpose of the 1985 memorandum was "to develop a method to enhance the current method utilized to allocate employment to land use for trip generation and forecasting purposes". Employment in a single SIC category could be divided and distributed to each of the four employment categories based upon a percentage. Of the 56 SIC-based land use categories listed in the memo, 25 were divided into more than one land use category. Using this allocation methodology can result in a transportation analysis zone (TAZ) having a non-integer employment value in a land use category; rounding is then required.

The methodology outlined in the 1985 memorandum has been useful to subcommittee members, but it has become outdated. In 1997, the SIC system was replaced by the current NAICS. Economic and technical changes over the past thirty years have resulted in new industries and employment

² Ronald Milone et al., "Calibration Report for the TPB Travel Forecasting Model, Version 2.3, on the 3,722-Zone Area System," Final Report (Washington, D.C.: Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, January 20, 2012), 4–19, <https://www.mwcog.org/transportation/data-and-tools/modeling/model-documentation/>.

³ "Updates to COG/TPB Travel Forecasting Procedures, Highway Applications, 1990 Validation and 2010 Simulation" (Washington, D.C.: Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, March 1994), 5.

⁴ Milone et al., "Calibration Report for the TPB Travel Forecasting Model, Version 2.3," 4–19.

⁵ Milone et al., 1–4.

⁶ Department of Metropolitan Development and Information Resources, "Relationship Between Employment by Standard Industrial Classification Code and Employment by Land Use Type," Technical Memorandum (Washington, D.C.: Metropolitan Washington Council of Governments, June 30, 1985), <https://www.mwcog.org/file.aspx?&A=wkmq84Ubr%20bajfnhWoEKXvs3CqldMlcqO3cVYC%2fLEoVA%3d>.

categories that are not covered by the 1985 memorandum or are no longer accurately represented. The practice of dividing and allocating employment in a single industrial category into four separate employment groups introduces an unnecessary complication into an already complex forecasting task.

Appendix A of the 1985 memorandum categorized over 100 employment activities into one of the four employment categories. In 1985, TPB was using the Transportation Integrated Modeling System (T.R.I.M.S.), a predecessor model to the current travel model (known as Version 2.3). As both models use the same four land use categories for employment, the descriptions of employment activities remain relevant, even if the SIC-based categorizations outlined in the memorandum are outdated.

Employment Allocation Methodologies from COG Jurisdictional Staff

Since the introduction of NAICS, staff in several jurisdictions around the region have created tables to allocate employment by NAICS to the four land use categories used by the travel model. As in the 1985 memo, these tables allocate employment in a single NAICS category to more than one land use type. In other words, it assumes that there is a many-to-many (M:N) relationship between NAICS codes and employment categories. Table 1 on the following page shows the NAICS allocation tables provided to COG by staff of three COG members: Fairfax County, Loudoun County and Prince William County. The District of Columbia uses the Fairfax County table for its forecast. These tables have differing groupings and allocations, a reflection of each COG member having unique economies and forecasting approaches. For example, Fairfax County adds a fifth category—Institutional—for its employment forecasts. COG treats institutional employment as office employment when incorporating Fairfax County's forecast into the Cooperative Forecast.

Table 1: COG Jurisdiction Tables for Converting NAICS to COG Land Use Types

NAICS	Industry	Fairfax County / DC				Loudoun County				Prince William County			
		Industrial	Retail	Office	Other	Industrial	Retail	Office	Other	Industrial	Retail	Office	Other
11	Agriculture & Forestry	95	5	0	0	95	5	0	0	100	0	0	0
21	Mining	95	5	0	0	100	0	0	0	100	0	0	0
22	Utilities	25	0	75	0	25	0	70	5	25	0	70	5
236	Construction (Buildings)	34	0	66	0	90	0	10	0	34	0	66	0
2371-2373	Construction (Civil Eng.)	34	0	66	0	90	0	10	0	34	0	66	0
2379	Construction (Civil Eng.)	34	0	66	0	95	0	5	0	34	0	66	0
238	Construction (Contractors)	34	0	66	0	90	0	10	0	34	0	66	0
31-33	Manufacturing	100	0	0	0	100	0	0	0	100	0	0	0
42	Wholesale Trade	90	5	5	0	80	5	10	5	90	5	5	0
44-45	Retail Trade	0	96	0	4	0	100	0	0	0	96	0	4
481-486	Transport & Warehousing	25	0	75	0	95	0	5	0	25	0	70	5
487-488	Transport & Warehousing	25	0	75	0	0	0	0	100	25	0	70	5
491-492	Transport & Warehousing	25	0	75	0	60	20	20	0	25	0	70	5
493	Transport & Warehousing	25	0	75	0	95	5	0	0	25	0	70	5
51	Information	0	0	98	2	0	0	100	0	25	0	70	5
521	Finance (Central Banks)	0	0	98	2	0	0	100	0	0	0	98	2
5221	Finance (Depository)	0	0	98	2	0	50	50	0	0	0	98	2
5222-5223	Finance and Insurance	0	0	98	2	0	0	98	2	0	0	98	2
523-525	Finance and Insurance	0	0	98	2	0	0	98	2	0	0	98	2
5311-5312	Real Estate and Leasing	0	0	98	2	0	0	100	0	0	0	98	2
5313	Real Estate and Leasing	0	0	98	2	0	0	0	100	0	0	98	2
532	Real Estate and Leasing	0	0	98	2	0	100	0	0	0	0	98	2
533	Real Estate and Leasing	0	0	98	2	0	0	100	0	0	0	98	2
54	Professional and Tech. Svcs.	0	0	98	2	0	0	100	0	0	0	98	2
55	Management of Companies	0	0	98	2	0	0	100	0	0	0	98	2
561	Admin. & Waste Services	25	0	70	5	0	0	100	0	0	0	98	2
5621-5622	Admin. & Waste Services	25	0	70	5	95	0	5	0	0	0	98	2
5629	Admin. & Waste Services	25	0	70	5	0	0	100	0	0	0	98	2
61	Educational Services	0	5	90	5	0	0	10	90	0	0	10	90
6211-6214	Health Care & Social Assist.	0	0	98	2	0	0	100	0	0	0	70	30
6215	Health Care & Social Assist.	0	0	98	2	0	0	0	100	0	0	70	30
6216	Health Care & Social Assist.	0	0	98	2	0	0	80	20	0	0	70	30
6219	Health Care & Social Assist.	0	0	98	2	0	0	0	100	0	0	70	30
622	Health Care & Social Assist.	0	0	98	2	0	0	100	0	0	0	70	30
623	Health Care & Social Assist.	0	0	98	2	0	0	80	20	0	0	70	30
6241-6243	Health Care & Social Assist.	0	0	98	2	0	0	80	20	0	0	70	30
6244	Health Care & Social Assist.	0	0	98	2	0	0	0	100	0	0	70	30
7111	Arts and Recreation	10	10	70	10	10	0	90	0	0	100	0	0
7112	Arts and Recreation	10	10	70	10	20	70	10	0	0	100	0	0
7113-7115	Arts and Recreation	10	10	70	10	0	0	100	0	0	100	0	0
712	Arts and Recreation	10	10	70	10	0	0	0	100	0	100	0	0
7131	Arts and Recreation	10	10	70	10	20	70	10	0	0	100	0	0
7132	Arts and Recreation	10	10	70	10	0	100	0	0	0	100	0	0
7139	Arts and Recreation	10	10	70	10	20	70	10	0	0	100	0	0
721	Accommodation & Food Svcs.	15	65	20	0	30	70	0	0	0	100	0	0
722	Accommodation & Food Svcs.	15	65	20	0	0	100	0	0	0	96	0	4
811	Other Services, Public Admin	0	18	78	4	30	70	0	0	0	100	0	0
8121-8122	Other Services, Public Admin	0	18	78	4	0	20	80	0	0	100	0	0
8123	Other Services, Public Admin	0	18	78	4	0	100	0	0	0	100	0	0
8129	Other Services, Public Admin	0	18	78	4	0	20	80	0	0	100	0	0
813-814	Other Services, Public Admin	0	18	78	4	0	0	0	100	0	0	80	20
921-927	Public Administration	0	0	100	0	0	0	40	60	0	0	40	60
92811	Public Admin. (Military)	0	0	100	0	0	0	40	60	0	0	65	35
92812	Public Administration	0	0	100	0	0	0	40	60	0	0	40	60
99	Other	0	0	0	100	0	0	0	100	15	10	5	70

Employment Allocation Methodologies from other Metropolitan Planning Organizations

COG staff interviewed planners and engineers from five Metropolitan Planning Organizations (MPOs) from around the country about employment forecasting methodologies. Respondents shared their knowledge and experience in interviews and sent COG tables that detail how NAICS employment is allocated to employment categories. Four of the five MPOs use (or are transitioning to) an activity-based model, while one uses a traditional four-step travel model. Two of the five respondents use a land use model to forecast employment growth. All interviewed MPOs rely on two-digit NAICS employment for base-year employment. No interviewed MPO breaks up a NAICS employment category into multiple land use types, as in the 1985 COG technical memorandum on allocated SIC employment. In other words, each of the five MPOs assumes that there is a many-to-one (M:1) relationship between NAICS code and employment categories. Thus, each MPO allocates employment from each two-digit NAICS to a single land use input category. The allocation of NAICS employment for each interviewed MPO is shown in Table 2 on page seven.

Atlanta Regional Commission

The Atlanta Regional Commission (ARC) is the MPO for ten metropolitan Atlanta counties. COG staff interviewed Jim Skinner, a Senior Planner at ARC, about their forecast process. ARC uses an activity-based travel demand model. The region is divided into regional TAZs, which are then further divided into smaller local TAZs for each jurisdiction. ARC staff creates the forecast for regional TAZs, using a land use model; local jurisdiction staff then generate a forecast at the local TAZ level. Base-year employment is allocated using two-digit NAICS employment from QCEW data. The travel demand model uses six categories: “Agricultural & Natural Resources”; “Manufacturing, Wholesale Trade & Transportation”; “Retail Trade”; “Financial & Professional Services”; “Health, Educational and Recreational Services” and “Other”. Employment from each two-digit NAICS is not broken into more than one land use category.

ARC uses two land use models: REMI for regional forecasts and PECAS for small area forecasting. The REMI model’s land use input is based on the square feet of space by building type while PECAS uses employment as the land use input. Employment defined land use data is converted to space defined land use data for use in the PECAS. The outputs from the PECAS model are converted back to employment data again for use in the travel model.

Baltimore Metropolitan Council

The Baltimore Metropolitan Council (BMC) is the MPO for seven metropolitan Baltimore counties. COG staff interviewed Shawn Kimberly, a Transportation Planner at BMC, about their forecast process. In 2017, BMC began a transition from a traditional, four-step travel model to an activity-based travel model. For the current forecast, BMC will be using both models, so staff can compare model results. The region is divided into 1,392 TAZs, which nest into larger Regional Planning Districts.

The legacy four-step travel model uses the same four land use categories (Office, Industrial, Retail, Other) that COG uses for its forecast. The new ABM has different land use inputs than the previous travel model. The ABM has seven NAICS based employment categories: Office, Industrial, Retail, Education, Food, Medical and Other. All correspond to a two-digit NAICS, except for Accommodation (721) and Food Services (722), which belong to the same two-digit NAICS category (72:

Accommodation and Food Services). Employment from each two-digit NAICS is not broken into more than one land use type.

The Cooperative Forecasting Group utilizes an agreed upon methodology for the development of base year jurisdictional level employment totals formed through the combination of wage and salary employment data from the Bureau of Economic Analysis and Nonemployer Statistics data from the U.S. Census Bureau. The group forecasts in five-year increments, employing a bottom-up methodology. The current Round 9 forecast has a base-year of 2015 and forecasts out to 2045.⁷

Delaware Valley Regional Planning Commission

The Delaware Valley Regional Planning Commission (DVRPC) is the MPO for nine metropolitan Philadelphia counties in Pennsylvania and New Jersey. COG staff interviewed Ben Gruswitz, a Senior Planner at DVRPC, about their forecast process. DVRPC uses a traditional, four-step travel demand model. Their region is divided into 3,550 TAZs and 18 planning districts. TAZs nest within both planning districts and municipalities. Their travel model uses three employment categories: Basic, Retail and Other. DVRPC allocates employment to each land use category based on two-digit NAICS. Each two-digit NAICS perfectly corresponds with one land use category. Employment from each two-digit NAICS is not broken into more than one land use category.

DVRPC uses Dunn and Bradstreet, National Establishment Time-Series (NETS) and Census Transportation Planning Products employment data for base year employment. Forecasted employment relies on county-level forecasts by two-digit NAICS for Woods and Poole and NETS. At the TAZ level, employment for each two-digit NAICS sector grows at the same rate as the county-wide growth rate.

Puget Sound Regional Council

The Puget Sound Regional Council (PSRC) is the MPO for four counties in the greater Seattle area. COG staff interviewed Michael Jensen, a Senior Planner at PSRC, about their forecast process. PSRC uses an activity-based travel demand model, transitioning from a traditional travel model in 2016. The model uses eight two-digit NAICS-based employment inputs, using CES and QCEW for source data. The land use input categories are Industrial, Natural Resources, Office, Retail, Services, Food, Government and Medical. As at BMC, the two-digit NAICS category for Accommodation and Food Services (72) is broken into its two three-digit NAICS categories.

Regional employment growth forecasts are made from an in-house, top-down econometric model, which uses NAICS employment, population and demographic data as inputs. PSRC relies on the parcel and agent-based UrbanSIM land use model for distributing employment growth. Zoning is the major input for UrbanSIM. UrbanSIM also uses NAICS for categorizing employment, except it uses 12 two-digit NAICS categories. Employment from each two-digit NAICS is not broken into more than one land use category in either the travel or land use models.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the MPO for six metropolitan Los Angeles counties, along with 191 jurisdictions within those counties. COG staff interviewed Ying

⁷ The write-up for BMC was updated after receiving additional feedback from Shawn Kimberly.

Zhou, SCAG's Program Manager for Modeling and Forecasting, about their forecast process. SCAG is currently moving from a traditional travel demand model to an activity-based model. The region is divided into approximately 11,000 TAZs. The SCAG demographic forecast is a bottom-up forecast that relies on local general plans and jurisdictional input. The current base-year is 2016 and the years 2020, 2030, 2035, 2040 and 2045 are forecasted.

SCAG uses data from InfoGroup and the California Employment Development Department for base-year employment. Two-digit NAICS is allocated into 13 employment categories for the travel model: "Agriculture"; "Transportation and Utilities"; "Construction"; "Manufacturing"; "Wholesale Trade"; "Retail"; "Information"; "F.I.R.E."; "Professional Business Services"; "Education & Health"; "Leisure Hospitality"; "Government" and "Other Services". Employment from each two-digit NAICS is not broken into more than one land use category. The SCAG self-employment factor is seven to eight percent of wage and salary employment. Military employment is not included in the employment forecast.

Table 2: MPO Tables for Converting NAICS to Travel Model Land Use Types

NAICS	Industry	ARC (Atlanta)	BMC (Baltimore)	SCAG (Los Angeles)	PSRC (Seattle)	DVRPC (Philadelphia)
11	Agriculture, Forestry, and Fishing	Natural Resources	Industrial	Agriculture	Natural Resources	Basic
21	Mining, Quarrying, and Extraction	Natural Resources	Industrial	Agriculture	Natural Resources	Basic
22	Utilities	Industrial	Industrial	Transport & Utilities	Industrial	Other
23	Construction	Other	Industrial	Construction	Industrial	Basic
31	Manufacturing	Industrial	Industrial	Manufacturing	Industrial	Basic
32	Manufacturing	Industrial	Industrial	Manufacturing	Industrial	Basic
33	Manufacturing	Industrial	Industrial	Manufacturing	Industrial	Basic
42	Wholesale Trade	Industrial	Industrial	Wholesale Trade	Industrial	Basic
44	Retail Trade	Retail	Retail	Retail	Retail	Retail
45	Retail Trade	Retail	Retail	Retail	Retail	Retail
48	Transportation and Warehousing	Industrial	Industrial	Transport & Utilities	Industrial	Other
49	Transportation and Warehousing	Industrial	Industrial	Transport & Utilities	Industrial	Other
51	Information	Other	Office	Information	Office	Other
52	Finance and Insurance	Office	Office	F.I.R.E.	Office	Other
53	Real Estate and Rental and Leasing	Office	Office	F.I.R.E.	Office	Other
54	Professional and Technical Services	Office	Office	Prof. Business Servs.	Office	Other
55	Management of Companies	Office	Office	Prof. Business Servs.	Office	Other
56	Administrative and Waste Services	Office	Other	Prof. Business Servs.	Office	Other
61	Educational Services	Services	Education	Education & Health	Services	Other
62	Health Care and Social Assistance	Services	Medical	Education & Health	Medical	Other
71	Arts, Entertainment, and Recreation	Services	Other	Leisure Hospitality	Services	Other
721	Accommodation	Services	Other	Leisure Hospitality	Services	Other
722	Food Services	Services	Food	Leisure Hospitality	Food	Other
81	Other Services	Services	Other	Other Services	Services	Other
92	Public Administration	Other	Office	Government	Government	Other

*The land use categories for ARC have been abbreviated to fit the table layout.

RECOMMENDATION TO USE THREE-DIGIT NAICS FOR CONVERSION TABLE

Like COG, the five interviewed MPOs each utilize NAICS-based employment data for base-year estimates. Unlike past COG practices, these MPOs each allocate a two-digit (or three-digit) NAICS employment total to a single land use type (a many-to-one relationship). COG staff find this approach beneficial. It simplifies the base-year employment process and removes the complication of having non-integer employment totals, which arises when using percentages to allocate NAICS employment into more than one land use type. However, using a two-digit NAICS allocation does not allow for enough specificity to match the employment activities listed in Appendix A of the 1985 memorandum. For example, a two-digit based table would require military and public safety jobs (Other) to be classified alongside government office jobs (Office), Hospital jobs (Other) to be classified alongside dentists and primary care physicians (Retail), and Waste Management jobs (Industrial) to be classified alongside administrative jobs (Office). Table 3 on the next page proposes a conversion table allocating each three-digit NAICS to a single land use category. Allocations match the description of employment activities from Appendix A on the 1985 memorandum, but also rely on the memorandum's SIC allocations, COG member-jurisdiction NAICS tables or the interviewed MPO's NAICS tables when Appendix A is ambiguous or omits a three-digit NAICS category.

COG staff looks forward to receiving feedback from our subcommittee members to further enhance this process.

Table 3: Three-Digit NAICS to COG Land Use Types

NAICS	Industry Description	Land Use	NAICS	Industry Description	Land Use
111	Crop Production	Other	483	Water Transportation	Industrial
112	Animal Production	Other	484	Truck Transportation	Industrial
113	Forestry and Logging	Other	485	Ground Passenger Transport	Industrial
114	Fishing and Hunting	Other	486	Pipeline Transportation	Industrial
115	Agriculture Support	Other	487	Sightseeing Transportation	Industrial
211	Oil and Gas Extraction	Other	488	Transportation Support	Industrial
212	Mining	Other	491	Postal Service	Other
213	Mining Support	Other	492	Couriers and Messengers	Other
221	Utilities	Industrial	493	Warehousing and Storage	Industrial
236	Construction of Buildings	Industrial	511	Publishing Industries	Office
237	Heavy Construction	Industrial	512	Recording Industries	Other
238	Specialty Trade Contractors	Industrial	515	Broadcasting	Office
311	Food Manufacturing	Industrial	517	Telecommunications	Office
312	Beverage and Tobacco Mfg.	Industrial	518	Data Processing and Hosting	Other
313	Textile Mills	Industrial	519	Other Information Services	Other
314	Textile Product Mills	Industrial	521	Monetary Authorities	Office
315	Apparel Manufacturing	Industrial	522	Credit Intermediation	Office
316	Leather Manufacturing	Industrial	523	Securities	Office
321	Wood Product Manufacturing	Industrial	524	Insurance Carriers	Office
322	Paper Manufacturing	Industrial	525	Financial Vehicles	Office
323	Printing	Industrial	531	Real Estate	Office
324	Petroleum and Coal Mfg.	Industrial	532	Rental and Leasing Services	Retail
325	Chemical Manufacturing	Industrial	533	Lessors of Intangible Assets	Office
326	Plastics Manufacturing	Industrial	541	Professional and Tech. Services	Office
327	Mineral Product Mfg.	Industrial	551	Management of Companies	Office
331	Primary Metal Mfg.	Industrial	561	Admin. and Support Services	Office
332	Metal Product Mfg.	Industrial	562	Waste Management	Industrial
333	Machinery Manufacturing	Industrial	611	Educational Services	Other
334	Computer Manufacturing	Industrial	621	Ambulatory Health Care	Retail
335	Electrical Manufacturing	Industrial	622	Hospitals	Other
336	Transport Manufacturing	Industrial	623	Nursing Care Facilities	Other
337	Furniture Manufacturing	Industrial	624	Social Assistance	Other
339	Miscellaneous Mfg.	Industrial	711	Performing Arts and Sports	Other
423	Durable Goods Wholesale	Industrial	712	Museums and Historical Sites	Other
424	Nondurable Goods Wholesale	Industrial	713	Recreation Industries	Other
425	Wholesale Brokers	Office	721	Accommodation	Retail
441	Vehicle and Parts Dealers	Retail	722	Food Services	Retail
442	Furniture Stores	Retail	811	Repair and Maintenance	Retail
443	Electronics Stores	Retail	812	Personal and Laundry	Retail
444	Building Material Stores	Retail	813	Religious and Civic Orgs.	Other
445	Food and Beverage Stores	Retail	814	Private Households	Other
446	Personal Care Stores	Retail	921	Government Support	Office
447	Gasoline Stations	Retail	922	Justice and Safety Activities	Other
448	Clothing Stores	Retail	923	HR Program Admin.	Office
451	Hobby Stores	Retail	924	Enviro. Program Admin.	Office
452	General Merchandise Stores	Retail	925	Urban Dev't Admin.	Office
453	Miscellaneous Retailers	Retail	926	Econ. Program Admin.	Office
454	Nonstore Retailers	Office	927	Space Research	Industrial
481	Air Transportation	Industrial	928	National Security	Other
482	Rail Transportation	Industrial			