



## **Freight Transportation**

### Douglas County Comprehensive Transportation Plan

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## GOODS MOVEMENT PROFILE

Freight flow is increasing dramatically in Douglas County. The major routes in the county are Interstate 20, which runs west to east across the county, and a Norfolk Southern rail line, which runs west to east, north of I-20. Figure 1 shows Douglas County along with its major roads and railways. It is important to understand the flow of commodities into and out of the county. Therefore, commodity flow profiles for 2005 and freight forecasts for 2030 were provided by the TRANSEARCH database. This will make it possible to better understand infrastructure needs in the county.

The data in the TRANSEARCH database provide summary movements for inbound and outbound flow for each major commodity type. Commodity types are based on the 2-digit Standard Transportation Commodity Code (STCC) designation. Directions of the flows are categorized as follows:

- Inbound – Freight flows that originate outside of the study area but terminate within the study area; thus representing imports into the county.
- Outbound- Freight flows that originate within the study area but terminate outside the study area; thus, representing exports out of the county.

Table 1 displays freight flows by direction for Douglas County in 2005 and 2030. In 2005, nearly 19 million tons of truck freight traveled on the county's transportation system. In 2030, total truck freight tonnages are projected to increase by 133 percent to over 43 million tons.

Truck Flow	2005 Tonnage	2030 Tonnage	% Change
Outbound	6,527,198	18,626,549	185%
Inbound	12,113,868	24,777,646	105%
<b>TOTAL</b>	<b>18,641,066</b>	<b>43,404,195</b>	<b>133%</b>

### 2005 FREIGHT FLOWS BY TRUCK

A summary of the top ten commodities, by weight, shipped by truck and representing inbound and outbound flows is provided in Table 2. The top ten commodities in terms of weight represent 94 percent of the total tonnages of the county's goods movement. The top commodities are nonmetallic minerals (5.7 million tons), secondary traffic/manufactured goods (5.6 million tons) and lumber or wood products (2 million tons). A summary of the top ten commodities, by vehicles, is provided in Table 3.



<b>Table 2: Top Ten Commodities, by Weight, To and From Douglas County by Truck, 2005</b>	
<b>Commodity</b>	<b>Tons</b>
Nonmetallic Minerals	5,678,758
Secondary Traffic/Manufactured Goods	5,629,504
Lumber or Wood Products	1,988,044
Clay, Concrete, Glass Or Stone	1,254,667
Petroleum Or Coal Products	633,679
Food or Kindred Products	632,698
Metallic Ores	550,754
Primary Metal Products	550,362
Transportation Equipment	351,250
Pulp, Paper Or Allied Products	342,352
Other	1,028,997
<b>Grand Total</b>	<b>18,641,066</b>

<b>Table 3: Top Ten Commodities, by Vehicles, To and From Douglas County by Truck, 2005</b>	
<b>Commodity</b>	<b>Vehicles</b>
Shipping Containers	717,144
Secondary Traffic/Manufactured Goods	417,203
Nonmetallic Minerals	269,716
Lumber or Wood Products	79,138
Clay, Concrete, Glass Or Stone	78,332
Food or Kindred Products	27,755
Petroleum or Coal Products	26,481
Transportation Equipment	25,000
Primary Metal Products	22,249
Metallic Ores	21,701
Other	74,237
<b>Grand Total</b>	<b>1,758,956</b>

Table 4 displays the total weight of freight that originates from the county, representing exported goods totaling 6.5 million tons. The top commodities shipped from Douglas County are secondary traffic/manufactured goods (2.5 million tons) and nonmetallic minerals (2.1 million tons). Table 5 displays the number of vehicles that originate from the county and Figure 2 provides a graphical representation of outbound truck freight. This outbound freight represents exports or wealth generating freight, which is key to the Douglas County economy. Providing efficient freight transportation to external markets is critical to the producers of this freight and thus, the county's economic competitiveness.

<b>Table 4: Top Ten Commodities, by Weight, Originating From Douglas County by Truck, 2005</b>	
<b>Commodity</b>	<b>Tons</b>
Secondary Traffic/Manufactured Goods	2,508,988
Nonmetallic Minerals	2,126,011
Petroleum Or Coal Products	389,624
Pulp, Paper Or Allied Products	246,984
Clay, Concrete, Glass or Stone	238,934
Lumber or Wood Products	193,397
Transportation Equipment	176,475
Fabricated Metal Products	133,500
Food or Kindred Products	129,923
Machinery	112,127
Other	271,235
Grand Total	6,527,198

<b>Table 5: Top Ten Commodities, by Vehicles, Originating From Douglas County by Truck, 2005</b>	
<b>Commodity</b>	<b>Vehicles</b>
Shipping Containers	356,819
Secondary Traffic/Manufactured Goods	178,136
Nonmetallic Minerals	100,976
Petroleum or Coal Products	16,310
Clay, Concrete, Glass or Stone	14,751
Transportation Equipment	12,605
Pulp, Paper or Allied Products	10,243
Machinery	8,281
Lumber or Wood Products	7,694
Fabricated Metal Products	7,429
Other	21,005
Grand Total	734,249



Table 6 displays the total weight of freight destined for the county, which represents imported freight totaling over 12 million tons. The top commodities shipped to Douglas County are nonmetallic minerals (3.5 million tons), secondary traffic/manufactured goods (3.1 million tons) and lumber or wood products (1.8 million tons). Table 7 displays total vehicles destined for the county. These imported commodities represent inputs for the county's producers and consumption goods for the county's residents and visitors. Figure 3 graphically depicts inbound truck traffic.

<b>Table 6: Top Ten Commodities, by Weight, Destined for Douglas County by Truck, 2005</b>	
<b>Commodity</b>	<b>Tons</b>
Nonmetallic Minerals	3,552,747
Secondary Traffic/Manufactured Goods	3,120,516
Lumber or Wood Products	1,794,647
Clay, Concrete, Glass or Stone	1,015,733
Metallic Ores	550,754
Primary Metal Products	517,368
Food or Kindred Products	502,775
Petroleum or Coal Products	244,055
Transportation Equipment	174,775
Chemicals or Allied Products	171,336
Other	469,162
<b>Grand Total</b>	<b>12,113,868</b>

<b>Table 7: Top Ten Commodities, by Vehicles, Destined for Douglas County by Truck, 2005</b>	
<b>Commodity</b>	<b>Vehicles</b>
Shipping Containers	360,325
Secondary Traffic/Manufactured Goods	239,067
Nonmetallic Minerals	168,740
Lumber or Wood Products	71,444
Clay, Concrete, Glass or Stone	63,581
Food or Kindred Products	22,078
Metallic Ores	21,701
Primary Metal Products	20,922
Transportation Equipment	12,395
Petroleum or Coal Products	10,171
Other	34,283
<b>Grand Total</b>	<b>1,024,707</b>



## 2005 FREIGHT FLOWS BY RAIL

As was previously mentioned, only one Class 1 rail line, Norfolk Southern, serves Douglas County. Figures 4 and 5 summarize inbound and outbound freight for the county by rail car loads.

## 2030 FORECASTS OF FREIGHT MOVEMENTS BY TRUCK

Secondary traffic/manufactured goods will continue to be the dominant commodity shipped to and from Douglas County by 2030. It is forecast to increase by 339 percent and account for nearly 25 million tons. Nonmetallic minerals are projected to grow by 12 percent and constitute 6.3 million tons of freight. Table 8 displays the top commodities, by weight, moving in Douglas County. Table 9 provides a summary of the top ten commodities, by vehicles.

<b>Table 8: Top Ten Commodities, by Weight, To and From Douglas County by Truck, 2030</b>	
<b>Commodity</b>	<b>Tons</b>
Secondary Traffic/Manufactured Goods	24,731,791
Nonmetallic Minerals	6,342,766
Lumber or Wood Products	2,543,055
Clay, Concrete, Glass or Stone	2,382,297
Food or Kindred Products	1,413,288
Petroleum or Coal Products	1,127,420
Metallic Ores	1,017,123
Primary Metal Products	796,531
Pulp, Paper or Allied Products	542,749
Fabricated Metal Products	484,141
Other	2,023,034
<b>Grand Total</b>	<b>43,404,195</b>





<b>Commodity</b>	<b>Vehicles</b>
Secondary Traffic/Manufactured Goods	1,828,670
Shipping Containers	1,367,615
Nonmetallic Minerals	301,308
Clay, Concrete, Glass or Stone	149,088
Lumber or Wood Products	101,203
Food or Kindred Products	61,924
Petroleum or Coal Products	47,138
Metallic Ores	40,077
Machinery	33,537
Primary Metal Products	32,243
Other	145,310
<b>Grand Total</b>	<b>4,108,113</b>

Table 10 indicates that the top commodities shipped from Douglas County by 2030 will be secondary traffic/manufactured goods (14.2 million tons). Table 11 provides a summary of the top ten commodities, by vehicles. Figure 6 provides a graphical representation of outbound truck freight by 2030.

<b>Commodity</b>	<b>Tons</b>
Secondary Traffic/Manufactured Goods	14,237,313
Nonmetallic Minerals	853,294
Petroleum or Coal Products	680,421
Clay, Concrete, Glass or Stone	485,647
Food or Kindred Products	411,380
Pulp, Paper or Allied Products	378,931
Machinery	339,363
Lumber or Wood Products	284,541
Fabricated Metal Products	278,449
Transportation Equipment	162,605
Other	514,605
<b>Grand Total</b>	<b>18,626,549</b>

**Table 11: Top Ten Commodities, by Vehicles, Originating From Douglas County by Truck, 2030**

<b>Commodity</b>	<b>Vehicles</b>
Secondary Traffic/Manufactured Goods	1,018,984
Shipping Containers	647,180
Nonmetallic Minerals	40,582
Clay, Concrete, Glass or Stone	29,889
Petroleum or Coal Products	28,466
Machinery	25,065
Food or Kindred Products	17,973
Pulp, Paper or Allied Products	15,710
Fabricated Metal Products	15,494
Transportation Equipment	11,593
Other	42,455
<b>Grand Total</b>	<b>1,893,391</b>



Table 12 displays the forecast of top commodities shipped to Douglas County. Leading in terms of tonnage are secondary traffic/manufactured goods (10.5 million), nonmetallic minerals (5.5 million) and lumber or wood products (2.3 million). A summary of the top ten commodities, by vehicles, is provided in Table 13. Figure 7 provides a graphical representation of inbound truck freight.

<b>Table 12: Top Ten Commodities, by Weight, Destined For Douglas County by Truck, 2030</b>	
<b>Commodity</b>	<b>Tons</b>
Secondary Traffic/Manufactured Goods	10,494,478
Nonmetallic Minerals	5,489,472
Lumber or Wood Products	2,258,514
Clay, Concrete, Glass or Stone	1,896,650
Metallic Ores	1,017,123
Food or Kindred Products	1,001,908
Primary Metal Products	716,018
Petroleum or Coal Products	446,999
Chemicals or Allied Products	315,241
Transportation Equipment	225,874
Other	915,369
<b>Grand Total</b>	<b>24,777,646</b>

<b>Table 13: Top Ten Commodities, by Vehicles, Destined For Douglas County by Truck, 2030</b>	
<b>Commodity</b>	<b>Vehicles</b>
Secondary Traffic/Manufactured Goods	809,686
Shipping Containers	720,435
Nonmetallic Minerals	260,726
Clay, Concrete, Glass or Stone	119,199
Lumber or Wood Products	89,886
Food or Kindred Products	43,951
Metallic Ores	40,077
Primary Metal Products	29,008
Petroleum or Coal Products	18,672
Transportation Equipment	16,022
Other	67,060
<b>Grand Total</b>	<b>2,214,722</b>



## GOODS MOVEMENT SUMMARY

Like most other counties in the Atlanta region, freight and goods movement is projected to increase dramatically over the next twenty-five years. This presents both opportunities for continued economic development as well as substantial challenges to the existing freight movement infrastructure. The following chapters will discuss strategies to accommodate the anticipated growth to ensure that an adequate freight transportation network is maintained.

## FREIGHT CORRIDORS

Freight Corridors are corridors that serve freight and industrial land uses. During the update of the Unified Growth Policy Map (UGPM) it became clear that the existing areas delineated as Freight Corridors were inadequate. As adopted, the UGPM largely relied on the location of existing freight uses to delineate Freight Corridors. The on-going Atlanta Regional Freight Mobility Plan has highlighted the need for the Atlanta region to think and act proactively in order to remain an attractive area for transportation and logistics companies, activities, and investments.

Significant changes to the 'Freight Corridors' were made during the update process, including the name (now Freight Areas). Changes were made to accommodate the regional study as well as local concerns that the areas identified on the map were not adequately reflecting areas where freight uses and activities are concentrated. Modifications were also needed to include new counties that were not previously included (previous Freight Corridors relied on data that covered only ARC's 10-county Regional Development Center (RDC) area).

The UGPM now emphasizes concentrations of freight activity. Geographic Information Systems (GIS) analysis was used to identify existing clusters of freight and logistics land uses. The spatial area of each of these concentrations was generalized in order to include both existing facilities and areas that are likely to attract future freight development. Only the largest and most significant clusters are included in the Freight Areas Regional Plan. The end result is a significant increase in the land area delineated as most suitable freight development. This increase provides for the expansion of freight development and also more clearly delineates areas that are likely to be impacted by freight and logistics operations. Figure 8 shows the identified Freight Areas within Douglas County.

Obviously, freight areas do not stop at municipal boundaries, but overlap to accommodate various freight producing corridors. There are only two freight areas entirely within the Douglas County, located in Douglasville along US Highway 78. Three other freight areas are partially located within Douglas along the eastern boundary – two of which are along SR 6 while the other is in the eastern section of Douglasville. Zoning and future land uses should respect the function of these areas and will be discussed later in this chapter.



## FREIGHT LAND USE ANALYSIS


Douglas County is strategically located 28 miles west of downtown Atlanta and linked to the metro Atlanta area and Hartsfield International Airport by Interstate 20. Because of its proximity to Atlanta to the east, freight intensive development activity within Douglas County has traditionally been concentrated in the eastern portion of the County along the Fulton and Cobb County lines. However, in recent years, freight intensive developments have grown outward along other major transportation corridors in the area. Although freight related uses do not make up a significant portion of the land uses within Douglas County, it is important to facilitate effective coordination of freight related development with residential and other non-freight land uses so that the potential for conflicts between land uses and transportation activities decrease. Industrial development patterns and locations should strike a balance between competing uses while accommodating freight movement needs.

Land uses are not mutually exclusive and must interact with the transportation network while supporting the quality of life and mobility of residents. The large amount of residential development within Douglas County requires existing and/or future freight intensive development reflect the delicate balance between the dynamics of land use designation and the safe and efficient movement of freight. It is particularly important to consider the effects freight related developments can have on their surrounding environment such as noise pollution, decreased air quality, lighting issues, and increasing truck traffic. The planning process should proactively pursue integration of compatible land uses and adequate buffering while promoting freight mobility. By looking at existing and future land uses as well as current zoning policies, the following sections focus on potential conflicts that exist while considering the relationship between freight and non-freight uses. This chapter also provides suggestions on how to ease the transition from high-intensity uses to less intense land uses through the use of landscaping buffers and transitioning.

### Existing Land Use

Most of the developed land uses within Douglas County are single-family residential. The more urban areas within the County include the city of Douglasville and portions of Villa Rica and Austell that contain more intense land uses and development types – typical of more urban settings. However, only portions of Villa Rica and a very small portion of Austell are located within Douglas County (see Figure 9). The existing land uses for the Douglas County portions of these cities also consists of mostly residential developments.





The majority of freight-related land uses within Douglas County are within Douglasville and the unincorporated portion of the County along US Highway 78 (Bankhead Highway) and to the east along SR 6 (Thornton Road). The fact that most of the freight intensive land uses are concentrated along major corridors and around the more urban areas illustrates that the citizens of Douglas respect the County's current rural state as central to their identity and quality of life and want to preserve these small town qualities. This is an overarching theme reflected throughout current planning documents, such as Douglas County's Comprehensive Plan, which is a result of public input and intended to preserve the county's bucolic atmosphere. For example, an excerpt from the County's Comprehensive Plan states that:

Some uses are not considered appropriate for unincorporated Douglas County within the Communities overall vision, such as heavy industry that generates air or water pollution, very high-density housing and intensive regional commercial development. Environmental regulations and the UDC will ensure that all industrial development attracted to Douglas County is also environmentally friendly, as not to infringe upon the overall single-family environment of the County.

Although it is anticipated that Douglas County will continue to develop through 2030, the unincorporated portion of the County is expected to remain predominantly single family residential in nature. As freight related land uses expand and new areas develop, the desire to maintain the County's rural qualities is important because proper planning will be required to prevent conflicting land uses and encroachment into industrial areas and promote cooperation and compatibility between land uses among the different municipalities.

Table 14, Land Use by Acres, from the Douglas County Comprehensive Plan shows the amount of land being used by net acre within the unincorporated portion of the County. Of the total acreage, industrial uses make up only 7.3 percent of land in unincorporated Douglas County with 1,682.21 net acres. A description of the industrial land use is provided below. Almost 72 percent of the land within the county limits is currently developed with residences or businesses, schools and other facilities, churches, cemeteries or parks with the clear majority being residential. The second largest land use category is undeveloped and vacant parcels at over 31 percent.

<b>Table 14: Existing Land Use by Acres</b>	
<b>Land Use Category</b>	<b>Net Acres</b>
Agricultural	3,362.89
Agriculture/Timber	4,870.13
Single Family Residential (<5 ac tracts)	17,167.88
Single Family Residential (5 to 35 ac tracts)	16,713.73
Single Family Residential (>25 ac tracts)	7,840.26
Townhouse	9.82
Commercial	1,711.25
Industrial	1,682.21
TCU	297.86
Public/Institutional	2,286.50
Parks/Recreation/Conservation	15,471.01
Vacant	33,417.68
<b>Total</b>	<b>104,777.21</b>

### ***Industrial***

This land use category is intended for land dedicated to manufacturing facilities, processing plants, factories, warehousing and wholesale trade facilities, mining or mineral extraction activities, or other similar uses. Douglas County has a limited range of such uses.

Industrial development is reflected in three types of development: Business center uses, standalone industrial uses, and intensive industrial uses such as quarries and landfills. There is a mix of both types within the county. Current industrial parks include Douglasville, Interstate West Business Park, McKay Industrial Park, Odessa Industrial Park, Sweetwater Industrial Park and Westford Business Park. Industrial corridors that are more intensive manufacturing/warehousing/wholesaling operations are concentrated on Thornton Road and Bankhead Highway. There is also a quarry and landfill located within the county (see Exhibit 5).

- Light Industrial areas include accessibility to major transportation facilities, availability of adequate utilities and other public services, and availability of large quantities of suitable land. Uses compatible with light industrial development are to be encouraged insofar as they are in accordance with comprehensive development plans for the county. This category includes industrial uses with limited negative impacts such as limited manufacturing, warehousing and wholesale operations.
- Restricted Light Industrial uses are light industrial developments that are characterized by office and administrative operations in the front and storage space in the rear, usually served with loading docks, where merchandise is stored for distribution, repair, assembly or otherwise handled in transit to the user. The use of campus type business centers is encouraged to promote a suitable environment for high quality, visually attractive, stable, light industrial, research and administrative offices.

- Heavy Industrial includes industrial uses that require accessibility to major transportation facilities, availability of adequate utilities and other public services, and availability of sufficient quantities of land to adequately support such establishments. Heavy industrial uses tend to have major impacts, such as noise, traffic, odor and maybe utilizing chemicals or process that require strong separation from other types of uses such as residential or retail development.

### Freight and Logistics Land Use

Freight intensive land uses generate commerce through the production of goods. To ensure goods are proficiently distributed, the location and design of industrial and warehouse and distribution (W&D) developments must allow and promote the efficient movement of these goods. In order to accommodate efficient movement of freight and goods, the proper transportation facilities and land need to be in place. Locating W&D facilities along major corridors and protecting them from encroachment by less intense uses is particularly important for Douglas County since the majority of land uses are non-freight uses. As previously mentioned the industrial development within Douglas County primarily exists along major corridors such as Bankhead Highway (US 78) and in the eastern portions of Douglas County along the Thornton Road corridor near the Fulton and Cobb County lines.

As Figure 10 and Table 15 shows there are ten freight facilities located within the Douglas County boundary. With the exception of the quarry, the majority of the county's freight facilities are warehouse/distribution centers with truck loading and unloading bays oriented toward freight and goods distribution. As Figure 10 illustrates, most of the freight facilities are concentrated in the eastern portion of the county along Fulton Industrial Boulevard (not shown) in Fulton County and SR 6. Some of the other facilities shown are located near I-20 and Bankhead Highway. Naturally, many of these developments use I-20 for access (see Figure 4).

<b>COMPANY NAME</b>	<b>GROUPING</b>	<b>ADDRESS</b>	<b>CITY</b>
Dawn Food Products	Food	4400 Dodson Dr.	Douglasville
Ply-Marts Inc	Consumer Retail	2705 Strawn Rd.	Winston
Medline Industries	Consumer Retail	9101 Riverside Pkwy.	Lithia Springs
Al-Wali Inc	Consumer Retail	401 Thornton Rd.	Lithia Springs
Mitsubishi Motors N	Consumer Retail	801 Interstate West Pkwy.	Lithia Springs
Maytag Corp	Consumer Retail	1445 Trae Ln.	Lithia Springs
Bunzl Distribution	Industrial	825 Maxham Rd. Ste 400	Lithia Springs
Glass Distributors	Industrial	2241 Sweetwater Industrial	Lithia Springs
Applied Industrial	Industrial	1515 Distribution Ct.	Lithia Springs
Jims Formal Wear Co	Industrial	240 Thornton Rd. Ste D	Lithia Springs



Douglas County's industrial and high employment areas have excellent access to the State highway system. For this reason, Douglas County has become more of a shopping and employment hub for its sector of the region than an industrial center with the completion of developments such as Arbor Place Mall and the Landing at Arbor Place. Arbor Place Mall and its nearby supporting commercial facilities, serve an east-west sector focused on I-20 on SR 92 and SR 5, and Chapel Hill Road. Although the manufacturing sector is anticipated to continue to grow in the future, it is expected to decline as a proportion of the economy due to the overwhelming growth of the service and retail sectors and most likely will include only extremely limited heavy manufacturing endeavors. Truck traffic generated from commercial as well as industrial uses primarily runs along I-20 to access these areas via north/south connections such as SR 6 (Thornton Road), Lee Road, SR 92 (Fairburn Road), Chapel Hill Road, and SR 5. For instance, Figure 11 shows access to the Sweetwater Industrial complex from I-20 via Lee Road.

**Figure 11 – Access to the Sweetwater Industrial Park from I-20/Lee Road**



## EXISTING LAND USE ANALYSIS

Since non-freight related uses make up the majority of the study area, it is important to assess their compatibilities and incompatibilities with freight-related uses as well as address their impacts on the surrounding community, environment, and transportation system. Based on aerial images of land uses as they exist today, there are some examples of conflicting uses due to a lack of land use buffers or transitioning from more intense uses (industrial or freight intensive) to less intense uses (residential). An example of inadequate buffering between existing uses can be found to the west of SR6, south of I-20. Figure 12 presents a photo of Mac Paper warehouse distribution center in remarkably close proximity to the Tributary residential land use. It is very important that these types of development approvals be limited in the future as they hold the potential to precipitate noise, air, and light pollution problems. These types of issues can be limited by having a solid future land use plan and by ensuring proper zoning is in place when considering re-zonings for new developments.

**Figure 12 – Incompatible uses near SR6**



Figures 13 and 14 show the large rock quarry that is within Douglas County and surrounding industrial complexes along Bankhead Highway at the SR 5 intersection. The rock quarry represents only a distinct minority of the freight related land uses within the county. Currently there is an adequate amount of vacant or forest land to the south of the developed area to serve as a buffer from the residential development that is along John West Road, south of the quarry (see Figure 15) and to the east (see Figure 16). It is important to maintain this buffer and not allow the expansion of the residential areas to encroach on the quarry and surrounding industrial developments.

Figure 13 – Rock quarry near Bankhead Highway



Figure 14 – Industrial uses adjacent to rock quarry



Figure 15 – Forested buffer between rock quarry and residential development

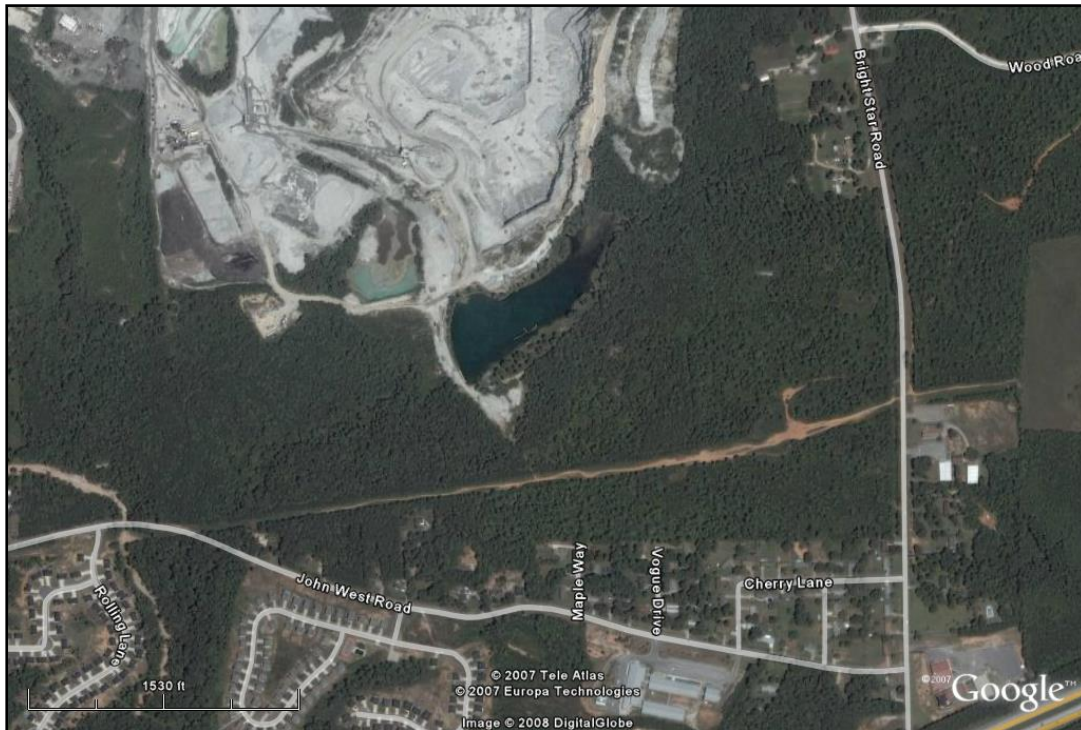
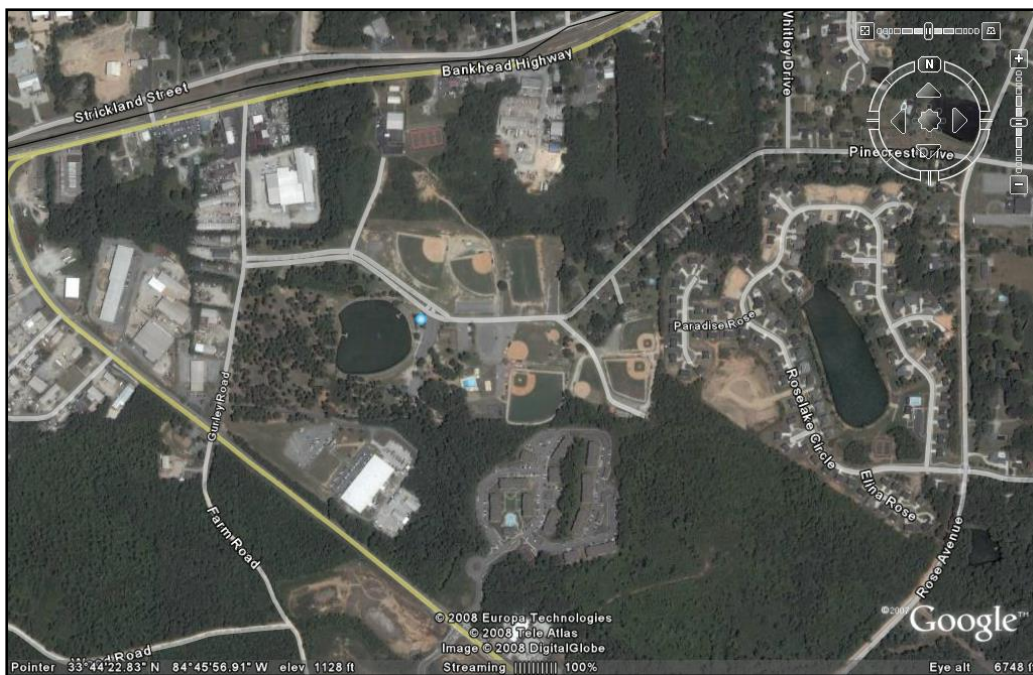
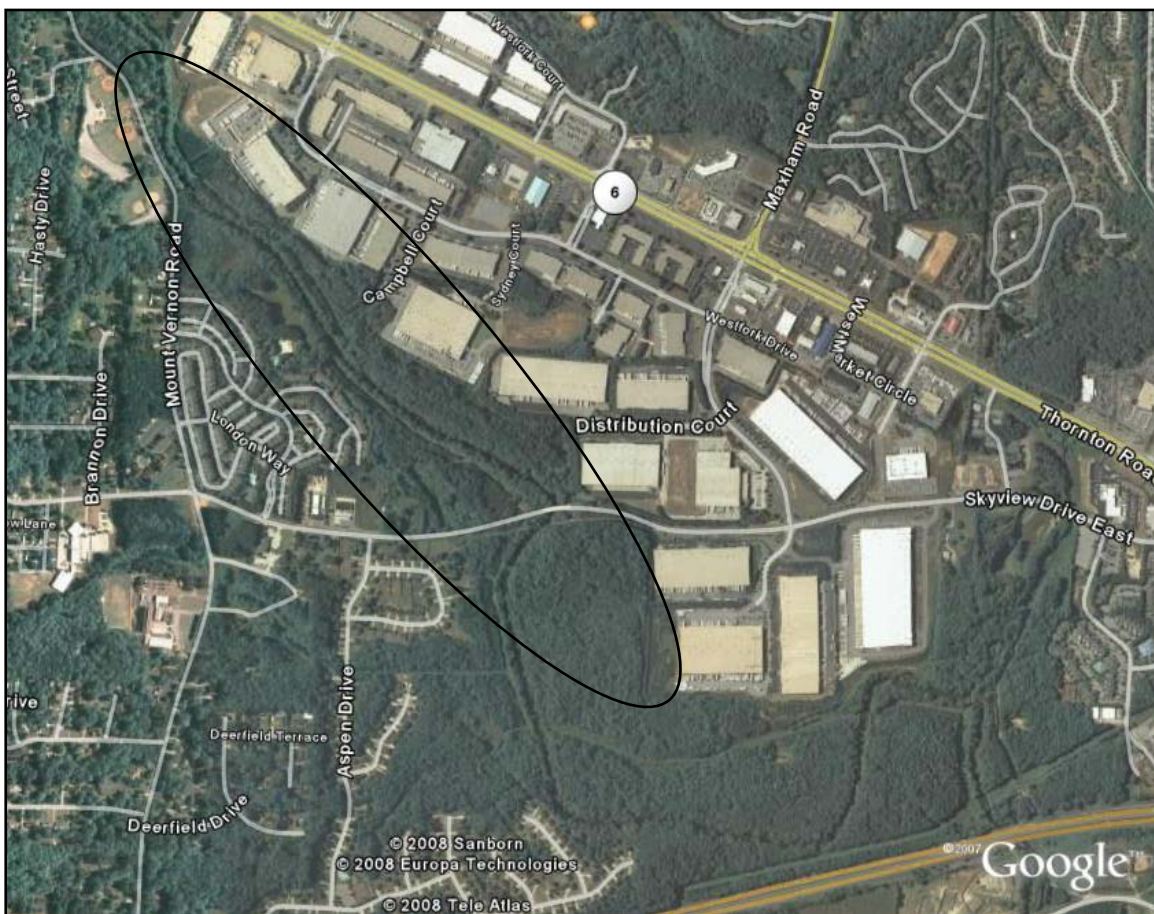


Figure 16 – Forested buffer to the east of rock quarry



As previously shown in Table 14, residential uses are the most prevalent within the County other than developable forest land. Although forest land can potentially be used for industrial purposes, the future land use map and zoning districts, combined with market forces, will determine what will ultimately be built in these areas. Because of the potential for encroachment onto higher intensity industrial uses it is pertinent to review the relationship between the residential land and industrial land. For example, Figure 17 shows forested land between residential and institutional uses and a large W&D area on Thornton Road, north of I-20. It is important that this W&D area remain buffered from the residential areas with open space or a transitional use such as office or community commercial.

**Figure 17 – Potential encroachment**



While Douglas County is rapidly growing, it contains substantially less urban and industrial development than neighboring Cobb and Fulton Counties. In general, existing land uses closely reflect current zoning patterns, and primarily consist of residential development. With the exception of SR 92, current areas of commercial and residential development will likely expand in today's economy causing these uses to continue increasing. It is anticipated that SR 92 will experience unprecedented growth due to the influence of the large planned development,

Tributary. Careful transportation and land use planning that focuses on transitional and compatible growth along these corridors is extremely important in ensuring the county's livability in the future.

### UNIFIED DEVELOPMENT CODE (UDC)

Although existing land uses present how land is used currently, it does not explain potential land use. Zoning and future land use plans help determine ultimate land uses. There are four jurisdictions within Douglas County, each with separate zoning: the cities of Douglasville, Villa Rica, Austell, and Douglas County. Although each authority has its own set of criteria, freight planning must look at the “big picture” and consider the effects freight development has on surrounding land uses – regardless of their association with the local jurisdiction.

Figure 18 shows zoning for jurisdictions within Douglas County. Regardless of the municipality, the location and pattern of industrial land uses are critical to freight transportation systems. Successful planning and zoning efforts should strike a balance between incompatible land uses while accommodating freight transportation. For this reason, it is important for those who shape development patterns through zoning and planning policies to establish the proper guidelines for accommodating land uses compatible with freight activities between boundaries. During the Comprehensive Plan's overall assessment of existing land uses within Douglas County several problem land use patterns emerged:

- Extensive single-use districts;
- Strip commercial development; and
- Incompatible districts adjacent to the City of Douglasville.

According to the County's Comprehensive Plan, the main issue of incompatible land use relationships concerns properties that border municipal boundaries within the County. The County and its municipalities, especially the largest, the City of Douglasville, work together to coordinate future land use plans, densities and area designations with each of their respective plans throughout this process. Although adjacent land uses are much more compatible than in the last Comprehensive Land Use Plans, there are still compatibility issues between the unincorporated sections of the County and specifically the City of Douglasville. These areas, primarily concerning established single-family communities adjacent to the City, are expected to remain unstable areas. As the City of Douglasville continues to increase its non-residential tax base through annexation, these areas will continue to be under development pressure to rezone commercial. Douglas County feels strong about protecting its established single-family communities and will continue to work with the City of Douglasville to limit incompatible zoning pressures in these areas, in addition to discouraging strip corridor commercial development, especially in the Chapel Hill Road Corridor. Properties within the unincorporated county have developed with strong compatibility standards, and will continue to be developed with appropriate mechanisms, such as transitional and step-down zoning and buffering in the future to ensure compatibility. Zoning policies specific to each jurisdiction within Douglas County are discussed below.

## Douglas County

There are several zoning districts in unincorporated Douglas County's Unified Development Code (UDC) (or zoning ordinance) that allow for potential freight producing land uses: Heavy Commercial (C-H), Light Industrial (LI), Restricted Light Industrial (LI-R), and Heavy Industrial (HI). There are also overlay districts that allow for industrial uses: O-QGD Quality Growth Development Overlay, O-LF Landfill Overlay, and O-AH Airport Hazard Overlay.

### ***C-H Heavy Commercial***

The C-H Heavy Commercial District is established to protect and promote a suitable environment for commercial uses that benefit from direct access to major streets or are located on major streets and thoroughfares that are classified as major arterial roads or interstate highways. Such uses commonly generate loud noises and require large areas for open storage, or generate substantial motor vehicle traffic.

### ***LI Light Industrial***

The LI Light Industrial District is established to protect and promote a suitable environment for light industrial purposes, including accessibility to major transportation facilities, availability of adequate utilities and other public services, and availability of large quantities of suitable land. Uses compatible with light industrial development are to be encouraged in accordance with the Comprehensive Plan.

### ***LI-R Restricted Light Industrial***

The LI-R Restricted Light Industrial District is established to protect and promote a suitable environment for high quality, visually attractive, stable, light industrial, research and administrative offices.

### ***HI Heavy Industrial***

The HI Heavy Industrial District is established to protect and promote a suitable environment for heavy industrial uses including accessibility to major transportation facilities, availability of adequate utilities and other public services, and availability of sufficient quantities of land to adequately support such establishments. Uses compatible with light and heavy industrial development are to be encouraged while in accordance with the Comprehensive Plan.

### ***O-QGD Quality Growth Development Overlay***

The O-QGD Quality Growth Development Overlay District is established to promote high quality development in areas of the county that are largely undeveloped but in the path of rapid, substantial residential, commercial, or industrial development that will radically change the character of the lands within the District boundaries. This District is designed to encourage high quality development by establishing restrictions and standards to protect the natural environment, promote optimum development, so that investment values will be maximized and will not be endangered by unsightly, undesirable, or incompatible developments springing up on adjacent properties in the foreseeable future.



**O-LF Landfill Overlay**

The O-LF Landfill Overlay District is established to protect properties near existing or previously closed solid waste disposal facilities from well-water contamination and from the buildup of methane gas within enclosed buildings. It is the intent of this overlay district to maintain compliance with requirements imposed by the Georgia Department of Natural Resources, Environmental Protection Division (Chapter 391-3-4, Solid Waste Management). The O-LF district includes all areas located within ½-mile (2,640 feet) of the property line of a property on which is located a solid waste disposal facility permitted under the rules of the Georgia Environmental Protection Division, whether currently active or previously closed.

**O-AH Airport Hazard Overlay**

The O-AH Airport Hazard Overlay District is established to provide areas to be used as either public or private airfields, and to create compatible use zones. See the Airport Zone Restrictions Division of the Restrictions on Particular Uses Article of this Code for provisions relating to the O-AH Overlay.

Figure 18 reveals that the majority of industrial zones are located within the unincorporated portion of the county where there is approximately 3,967 acres of industrially zoned land. The map also illustrates that the majority of industrially zoned parcels within Douglas County run along major transportation corridors such as the Norfolk Southern rail line, US 78, SR 92, I-20, and SR 6. In general, the zones are placed properly since they offer access to major transportation routes within the County which is important to the efficient movement of goods. Figure 18 also illustrates that the majority of zones within Douglas are residential - not industrial. This is important because proper transitioning and buffering should be in place to accommodate the mix of freight and non-freight uses. A closer look at the zoning along the eastern portion of Bankhead Highway is shown in Figure 19.

The light and dark purple areas shown in Figure 19 represent low and high intensity industrial uses. The light yellow and tan areas represent low density residential zones that make up the majority of uses along Bankhead Highway and surround most all of the LI zones. In general, it is best to buffer industrial uses from residential areas by a transitional use such as a commercial or office zone or, at a minimum, apply a landscape buffer. However, there are permitted uses within the LI zone that are not incompatible with certain residential developments such as certain office facilities, small scale services (i.e., dry cleaning), and some business services. With appropriate buffering in place, lower intensity LI uses would not necessarily be incompatible with higher intensity/density residential uses. Nonetheless, it is rarely acceptable for HI uses to be directly adjacent to residential areas.



The following are images of the portion of Bankhead Highway shown in Figure 19 and illustrate freight intensive facilities next to residential uses. Figure 20 is a photo of commercial/light industrial uses at a Railroad crossing parallel to Bankhead Highway. The picture was taken from some vacant land that is for sale for residential development. Figures 21 through 23 show the adjacent rail corridor and the interaction between vehicular traffic and the railroad.

**Figure 20 – Bankhead Highway**



**Figure 21 – Bankhead Highway**



Figure 22 – Bankhead Highway



Figure 23 – Bankhead Highway



Aerial images of Bankhead Highway reveal that most of the industrial zones shown in Figure 18 are currently developed and adequately surrounded by large forested or vacant areas (see Figure 24). However, most of the vacant areas surrounding these industrial facilities are zoned for low intensity residential uses and should be considered for rezoning to a more compatible use, such as office, low intensity commercial, or restricted light industrial (LI-R). Even though the UDC requires a zoning buffer of 50 feet between residential and industrial developments, this may not always be adequate between the more intense industrial and freight uses and less intense residential uses. In addition, freight intensive developments tend to generate truck traffic and therefore should be located together along corridors such as Bankhead Highway. A transitional use would be most appropriate in the vacant areas surrounding these light industrial (LI) and heavy industrial (HI) districts.

**Figure 24 – Vacant residential zones surrounding industrial uses**



Figure 25 gives an example of a parcel along Connors, east of Nalley Road that is currently vacant but zoned LI. If the area develops with permitted LI uses, the neighborhood located to the west along Nalley Road would need to remain adequately buffered with existing trees and forest area.

**Figure 25 – Vacant industrial zone neighboring residential uses**

Instances of inappropriately placed industrial zoning within unincorporated Douglas County also occur in isolated areas where industrial parcels are placed away from major corridors and are surrounded by inappropriate/non-freight uses. Some examples of isolated industrial parcels are provided below. One such instance is an isolated parcel of Light Industrial (LI) located on Moccasin Lake Road, approximately 2.5 miles south of I-20 (See Figures 26 and 27). This area is surrounded by Residential-Agriculture (RA) and Low Density Single Family Residential (R-LD) and a small area of Neighborhood Commercial (CN). An aerial image of the area reveals that it is mostly rural. In this instance, it does not appear to be consistent with the County's land use policies and should possibly be re-zoned to a less intense use.



**Figure 27 – Isolated LI Zone on Moccasin Lake Road**



Even though the majority of freight intensive uses within the County are placed appropriately along major corridors, they tend to be combined with a large amount of Low Density Single Family Residential (R-LD) zoning. For instance, although the industrial uses shown in Figure 18 are located along the CSX rail line, LI, LI-Restricted, and HI are also directly adjacent to the light beige color that represents R-LD and R-A. Placing industrial uses along the railroad is appropriate, but proper transitions, such as a mix of commercial and office uses, should be integrated to generate a suitable transition between freight generating uses and neighborhoods.

While commercial uses are generally accepted as being compatible with industrial and warehouse/distribution developments, residential uses are not. When zoning land for residential uses within the vicinity of industrial uses, it is important to implement proper buffers between the two uses in the form of a transitional intensity land use such as commercial or office. This is also important to remember when applying an overlay or mixed use zoning district since these zones permit the mixing of uses such as residential, commercial, and industrial. While the mixing of uses is generally accepted, landscaping buffers are not generally considered adequate buffers between residential uses and industrial or warehouse and distribution uses; therefore, transitional zones are necessary.

As shown in the previous examples, there are a few areas where there does not appear to be a proper buffer with regard to zoning. Specifically, along SR 6 on the eastern side of the county, there are several locations where both LI and HI zoned parcels are adjacent to Townhouse Condominium Residential (R-TC), PUD, RA, and Manufactured Home Residential (R-MH) (see Figure 28). These areas should be considered for rezoning where possible to a transitional zone such as commercial or office. In the areas zoned for PUDs (Planned Unit Development), there is potential

for implementing proper land use buffers since the PUD classification allows for residential, commercial, and industrial uses. Again, every attempt should be made to avoid industrial uses directly adjacent to residential uses.

In order to accommodate the need for transitions and buffering, the Douglas County UDC offers several provisions for the screening and design of industrial activities and associated uses. For example, the UDC requires that all outdoor storage or accessory uses on a property zoned LI, LI-R or HI be contained entirely within a building, properly screened, or setback at least 25 feet from the property line. Other design requirements for industrial zones include:

- Screening of dumpsters
- Posting of a street address
- Allowable building material
- Exterior lighting
- Landscaping
- Heating and air unit screening
- Screening of detention areas
- Screening of truck loading areas
- Design requirements for parking garages
- Design requirements for parking lots and driveways

In addition to the standards for the design of industrial uses, Article 3 of the UDC, Restrictions on Particular Uses, outlines specific requirements intended to address the effects of certain uses. Industrial uses such as asphalt plants and concrete plants, petroleum or bulk storage facilities, and scrap yards and junkyards are listed in this section. Within the provisions for these particular uses, there is a requirement that “Local streets and streets in recorded subdivisions shall not be used as part of any truck traffic route giving access to the facility. The entrance or entrances shall be directly off a state or federal highway or a major or minor county thoroughfare as shown on the land use and thoroughfare plan and truck traffic routes and entrances to the facility”. This is an important provision for these particular uses and should possibly be listed as a provision for all potential truck producing uses – not just these particular uses. Another specific use outlined in Article 3 of the UDC applies to quarries or mining operations, including the one located within Douglas County (see Figure 13). This section outlines specific information to be contained within the application for such uses, stringent restrictions, and distance requirements for quarries. A list of noxious manufacturing or industrial activities not allowed within the county’s jurisdiction is also provided.



In order to address incompatible uses, the UDC provides an entire section on “zoning buffers” that states when any commercial, industrial or office zoning district abuts a residential district, a natural zoning buffer 50 feet deep will be required. A Zoning Buffer is defined in the UDC as an area of natural vegetation or man-made construction which is intended to provide a visual and dimensional separation between dissimilar land uses. When a natural zoning buffer is impossible or undesirable, a 50-foot wide structural zoning buffer meeting the requirements of this Division may be allowed. A structural buffer is a visual screen created through construction of a decorative masonry wall, earthen berm, or combination of a wall with an earthen berm, which may be supplemented with vegetation, so as to present an opaque visual separation when viewed from one side to the other throughout the year. Specific information pertaining to the design of these zoning buffers is also provided. This is another excellent provision that seeks to protect against undesirable combination of land uses.

Commercial and industrial subdivisions and Planned Industrial Parks are also addressed within the Douglas County UDC. Provisions within these sections that especially pertain to freight producing developments include the requirement that commercial/industrial subdivisions install a deceleration lane at all entrance roads into the subdivision. The ordinance also states that the department of transportation director may require a traffic study to determine if the project’s size warrants a center turn lane, longer deceleration lane, an acceleration lane or other improvements. If the traffic study determines that the traffic generated by the project warrants, the department of transportation director will require the additional improvements or other mitigating measures. The minimum right of way width for each street classification is listed in this section as well. The minimum acreage (10), minimum lot size, maximum number of lots and open space requirements for Planned Industrial Parks are all provided.

Along with requirements for industrial land uses, a specification relating to trucks is also included in the UDC. The UDC states that truck stop establishments that cater to the fueling needs of the trucking industry are required to provide truck parking areas at least 300 feet from any residential property and separated from adjoining residential property by a 200-foot wide zoning buffer. Prohibited parking for heavy trucks is also addressed for the AG and R-A districts and R-LD, R-MD, R-D, R-TC, R-MF and R-MH districts. Setback and lighting requirements of the parking area are outlined as well. In addition, the Parking article provides an entire section on truck loading that includes information on off-street truck loading, truck loading on public streets, and the location and improvement requirements for truck loading areas.

## Douglasville

Douglasville is the largest city within the county and contains approximately 1,065 acres of industrially zoned land within its city limits. Like the county, Douglasville has Light Industrial (LI) and Heavy Industrial (HI) zoning districts that allow for potential freight producing land uses. Figure 29 highlights LI and HI parcels within the city. There is a large amount of land zoned DCD, Design Concept Development Zone, which is similar to a PUD in that it allows mixed use and requires that a plan be presented to the Zoning Board.

The pattern of industrial zoning within Douglasville is similar to that of Douglas County in that most LI and HI zones are located along Bankhead Highway and to the east along Thornton Road. Also like the County's zoning patterns, the industrial uses in Douglasville are mostly surrounded by residential zones (shown in tan) even though they may actually be vacant or forest areas. However, this type of incompatible zoning, where residential abuts industrial zoning, on undeveloped land can contribute to encroachment on freight intensive areas. Since freight uses tend to start out in low cost areas that are generally undeveloped (such as the large forested areas shown in Figure 30), they are eventually encroached upon, leading to migration of freight related activities or negative impacts to the residents. Migration of freight activities becomes costly to reinvest in the kind of infrastructure suited for heavy-duty vehicles.



**Figure 30 – Large forested area zoned LI but abuts R6**



There are other instances near the I-20 and Fairburn Road interchange where residential areas that appear to be mobile homes, are inappropriately placed adjacent to freight related zoning (see the pink areas shown in Figure 31). These residential areas are zoned R-4 and could potentially generate serious conflicts with neighboring land uses and create additional environmental justice issues if proper buffering is not maintained (see Figures 32 and 33).



Figure 32 – Mobile Homes along I-20 near LI zoning

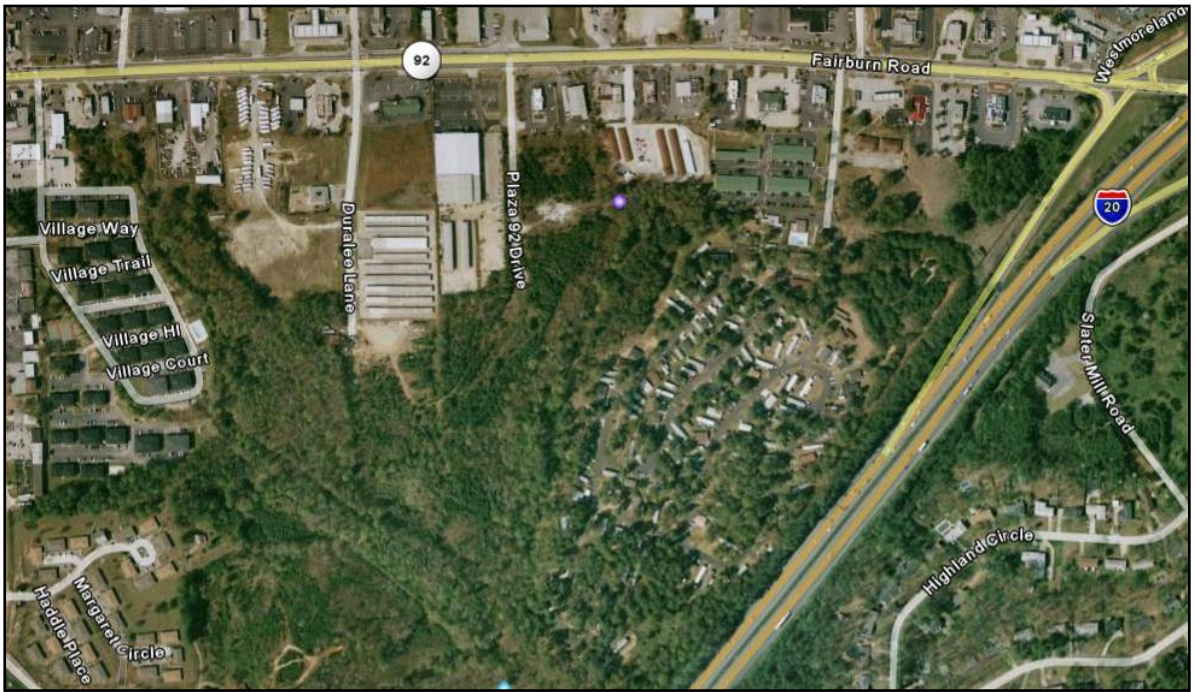
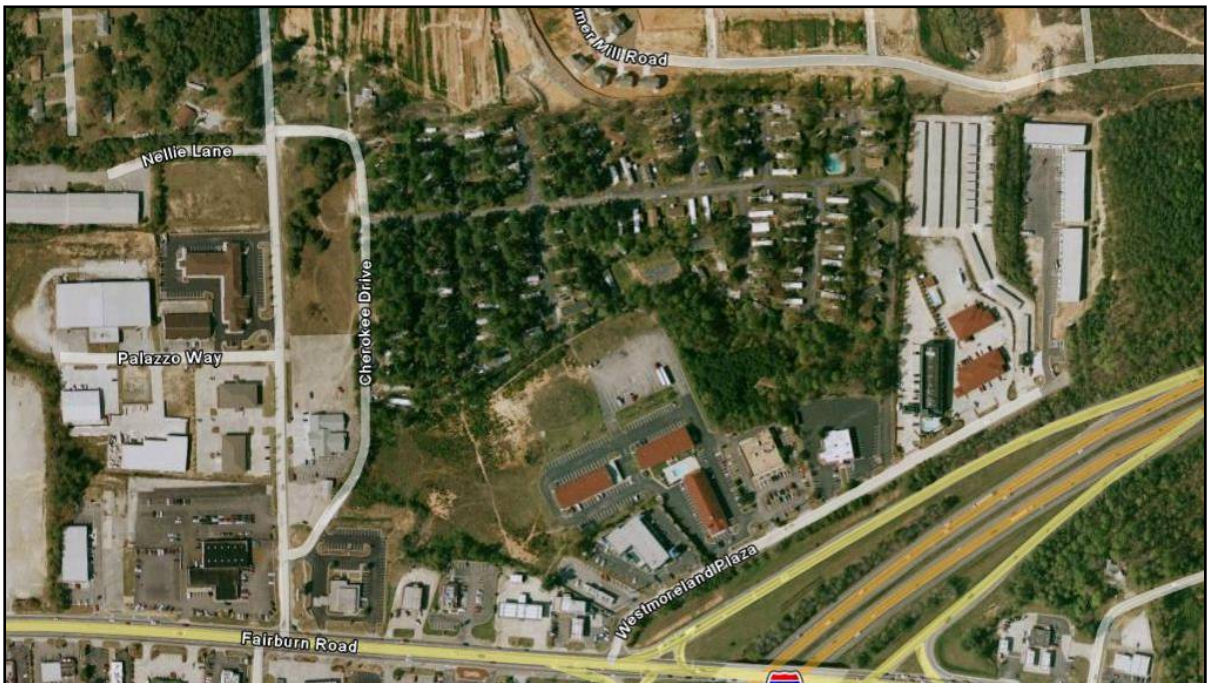


Figure 33 – R-4 zoning



For the most part, Douglasville LI and HI zones are located appropriately along major transportation routes. This provides proper access to freight intensive areas while also creating industrial nodes. Locating freight related zones together is beneficial to transitioning and buffering efforts by allowing the zoning pattern to gradually become less intense as the landscape becomes more rural or residential. Isolated industrial zoning adjacent to residential uses is incompatible and should be avoided.

## **Villa Rica UDC**

Villa Rica constitutes more of the land area in Douglas County than Austell, however, as illustrated in Figure 34, Villa Rica does not contain much industrially zoned land and is mostly zoned for Planned Unit Developments. There are approximately 84 acres of Light Industrial zones within the Douglas County portion of Villa Rica, most of which is located at the I-20 interchange. There are three zones that allow for freight related uses within Villa Rica, LI – Limited Industrial, GI – General Industrial, and PD – Planned Development. These uses along with parking, loading, asphalt, and buffer requirements make up the freight related development standards for the city. These zones and standards are described below.

### ***Planned Development***

The purpose of the Planned Development process is to demonstrate conformance with the Comprehensive Plan, compatibility of land use and coordination of improvements within and among individually platted parcels, sections or phases of development. A PD may be applied to residential, commercial, industrial or mixed-use projects to provide design flexibility not available through strict interpretation of the standards established in the UDC. Design flexibility is provided through Planned Development to enhance long-term community benefits that may be achieved through high quality development that provides:

- More efficient infrastructure;
- Reduced traffic demands;
- More usable public or private open space;
- Recreational amenities; and
- Needed housing choices.

It is important to continue proper buffering and screening standards when instituting a mixed use PD.

### ***LI – Limited Industrial***

This district is designed to accommodate light industrial uses in which all operations occur within buildings, including, but not limited to businesses that focus on distribution of goods, assembly, manufacturing, and warehousing. Uses permitted in this zoning district include indoor production, assembly and storage. Development shall conform to the dimensional standards established in the section including a minimum residential setback of 50 feet.

### ***GI – General Industrial***

This district is designed to provide appropriate locations for light and heavy industrial uses that may involve outdoor storage, display or operations. Uses permitted in this zoning district include all light industrial uses plus those involving outdoor storage, display and operations. The residential setback is increased to 100 feet for this zone.



There are also parking and loading, screening and buffering, pavement, and signage requirements outlined in Villa Rica's UDC that pertain specifically to industrial zones. Buffer and screening standards are especially applicable to the different freight zones. Types of buffers required between each zone can be found in Villa Rica's UDC.

With one exception, Villa Rica surrounds most of its LI uses with commercial instead of residential uses. The exception lies south of I-20 where there is an R-20 residential area to the east of some LI uses. This R-20 area is not currently developed as shown in the areal image below and should possibly be rezoned to a more intense use as a transition. Figure 35 provides an aerial view of this area

**Figure 35 – Villa Rica vacant residential zone near industrial**



### City of Austell

Comprising only small portion of the land area in Douglas County, Austell only has one 28 acre W&D development within Douglas County (see Figure 36).

The freight facility shown in Figure 36 is located along a major corridor (US 78) and is surrounded by large amounts of forest/vacant land. However, there is some R-10 and R-12 residential zoning to the north of this industrial site (see Figure 37) that could possibly encroach on the site unless step-down zoning is instituted along Line Street.

Figure 36 – Freight facility near US 78





## DOUGLAS COUNTY COMPREHENSIVE PLAN

Douglas County adopted its 2025 Comprehensive Plan in May 2006 to update its original Comprehensive Plan from 1994. This update was undertaken for several reasons. During the last six years the County experienced explosive growth causing population and employment projections to be greater than projected in the 1994 plan. The update brings the database to the 2000 benchmark, and extends the planning horizon to 2025. Each of the planning elements within the Comprehensive Plan is required by the State's Minimum Planning Standards and Procedures. The elements of Douglas's 2025 Comprehensive Plan include: Population, Economic Development, Housing, Natural Resources, Historic and Cultural Resources, Community Facilities and Services, Transportation, Intergovernmental Cooperation, Land Use, and Implementation. For the purposes of analyzing future land uses in relation to freight related uses, the Land Use section was the primary focus of this section.

The Comprehensive Plan continues to recommend that most of the land uses pertain to residential developments; however, there is an increase in the mixing of uses. Redevelopment opportunities are also mentioned, specifically naming the Bankhead Highway Corridor as the area where the majority of freight intensive uses exist within Douglas County. The future land use map shows that the Bankhead Highway corridor has transitioned away from intensive industrial uses to more of a mixed use area. In fact, most of the areas that allow for industrial uses allow for a mix of uses and zones. There are very few areas recommended to develop with intense industrial uses. Future land use categories that allow IL, LI-R, and HI zoning are described below. Figure 38 shows the Douglas County Future Land Use Map.

The future land uses listed in Table 17 that are identified as permitting industrial uses are primarily surrounded by residentially based future land uses. However, the Community Village Center, Mixed Use Corridor, Workplace Centers, and Commerce Center offer flexible design guidelines and a mix of uses that could be used to transition to/from freight intensive areas to residential areas. The only Intensive Industrial area is just north of I-20 to the west of the Lee Road interchange (see Figure 39). This area is not properly buffered with a future land use that allows for transitioning. This area is surrounded by the Urban Residential future land use, which is not compatible with intense industrial uses. This area should be buffered from surrounding residential uses with a mixed use.



Table 17: Future Land Use Categories

Character Area	Description of Character and Predominate Land Uses	Community Facilities	Zoning Districts	Master Planned Developments (MPDs)
Community Village Center	Higher intensity of commercial activity intended to serve more than one neighborhood, uses such as retail, office and services.	Public water & sewer may be available. Arterial access. Regional public facilities	OI-L, C-N, C-C, C-G (limited)	Mixed-use MPD Encouraged. "Main Street" style mixed use encouraged.
Mixed Use Corridor	Designed as a redevelopment corridor for existing commercial/light industrial corridors, or new emerging corridors. Light industrial and heavy highway commercial uses are allowed only within the Bankhead Highway Redevelopment Area.	Public water & sewer may be available. Arterial access. Potential rail corridor access. Regional public facilities	OI-L, C-N, C-C, C-G, C-H*, LI,* LI-R, RMD, RTC	Mixed use and master planned developments are highly encouraged within this district. Additional design and site restrictions apply.
Workplace Centers	Intensive commercial retail and services, office and high tech development along major highway corridors that are considered major employment generators with an emphasis on landscaping and aesthetics. Integrated office parks are highly encouraged. Residential developments are also encouraged to be integrated into the overall design.	Public water & sewer available or planned in the near future. Arterial access. Rail Access. Regional public facilities	OI-L, OI-H, C-C, C-G, C-R, LI-R, RMD, RTC	Urban design characteristics and unity are major characteristics within planned developments.
Commerce Center	Industrial/Office Park development, employment generators and interstate-oriented commercial development.	Public water & sewer. Major transportation Access.	OI-L, OI-H, C-C, C-G, C-H, C-R, LI, LI-R	Mixed commercial and industrial uses are the preferred method of development.
Intensive Industrial	Large scaled and high intensity users that have potential negative impacts on residential uses.	Major transportation access.	HI	Usually stand alone use, but could be incorporated within an industrial park.

Figure 39

## LAND USE RECOMMENDATIONS

With a mix of freight and non-freight uses within Douglas County, sufficient transportation infrastructure and sound land use planning is necessary to ensure the movement of freight is safe and efficient while respecting surrounding land uses. By continuing to cluster industrial development along major transportation routes and providing transitions to less intense uses, the environment for area residents will be safer than dispersing freight intensive developments throughout commercial and residential areas. The location, density, and design of developments have a significant effect on access to major transportation corridors such as I-20, US 78, and SR 6, its growth pattern, and the efficient movement of goods to and from the county.

### Zoning for Freight Developments

Even though the majority of uses within Douglas County are non-freight related, freight intensive uses within the county should continue to concentrate along major corridors surrounded by a mix of complimentary uses and transitions from more intense to less intense uses. Freight related development should be encouraged in Douglas County while ensuring proper buffers from residential development to prevent encroachment on freight intensive areas. Likewise, increasing the density of freight related developments within close proximity of truck routes allows for the most efficient use of needed infrastructure to accommodate development. This can be achieved by creating a separate and distinctive zoning classification that is specific to warehousing and distribution (W&D).

The W&D zoning classification is used in other cities and counties to support freight intensive developments. This classification can be used to cluster warehouse and distribution activities around specific areas that make operational sense. Clustering can also provide the basis for the development of a “freight village.” The creation of a zoning classification specifically designed to accommodate warehouse and distribution developments greatly enhances the ability of the county to properly locate developments with proper buffering and transitional uses. Freight generators and WD zoning designations should not be placed in isolated areas with inadequate access to truck routes.

Continuing use of overlay districts can help manage freight related growth. The advantages of using an overlay district tool include, but are not limited to:

- They can be written and mapped to incorporate whatever features are most important to a community. Boundaries can be easily defined using tax lot lines, roads, and existing slope or soils maps which closely approximate the feature of interest;
- They can address community concerns regarding proposed land use changes inside the district;
- They can easily be implemented by passing a city or county ordinance amending existing land use regulations.

Examples of overlay districts that could be implemented include access management and road corridor standards along Bankhead Highway, SR 6, and I-20.

## LAND USE ANALYSIS SUMMARY

Douglas County encompasses a mix of freight and non-freight uses as well as an extensive transportation network. These elements offer challenges and opportunities for local planners and stakeholders as the area continues to evolve and redevelop. Along with evolution comes the potential for conflicts between the residential and industrial development; it is important for planners and policy makers to consider this relationship when updating regulations and plans. In order for freight transport to function in the most efficient manner possible, freight intensive developments must compliment and coordinate with surrounding land uses and the transportation system – including the road and rail network.

It is also important that Douglas County redevelop in a manner that respects existing and potential residential and environmental areas. A separate W&D zoning classification is a land use recommendation that will help coordinate various land uses. Proper roadway design and infrastructure plus exploring the potential for rail and intermodal facilities are other ways in which freight-conducive developments can coexist with surrounding land uses and utilize the road and rail system along major transportation corridors. By understanding the relationship between freight producing land uses and less intense land uses such as residential development, local planners and policy-makers can make informed decisions for creating a harmonious relationship between the varying land uses and for the transportation system in the area.

## TRANSPORTATION ANALYSIS

The ability of goods and services to be transported in an efficient manner depends on a well functioning commercial transport system. Land use is important to freight movement because zoning and planning policies provide the guidelines for accommodating freight development and its supportive uses (refer to page 18); however, the transportation network provides the infrastructure essential for freight mobility. The transportation network surrounding and accessing Douglas County is vital to the efficient movement of freight and goods. This section of the document will outline existing and future policies and plans that have a significant impact on its transportation system.

## CURRENT TRANSPORTATION POLICIES

According to the Georgia Department of Transportation 2005-2035 Statewide Freight Plan, trucking is the dominant mode for carrying freight in Georgia, therefore the performance of the highway system is critical for transporting the overwhelming majority of Georgia's freight. Designated truck routes are the primary movers of freight and crucial to an efficient freight transport system. Truck routes are typically identified as a facility that provides the easiest route to navigate, i.e. shoulders, proper signage, turning radii, etc.; however, Douglas County does not provide a list of designated truck routes. Instead, the Douglas County code identifies portions of roadways within the county that prohibit trucks with more than six wheels and only allow local traffic. A list of these prohibited zones is in Appendix A along with associated fine for violation. It is important that truck routes be identified for local residents and trucks in the freight intensive areas. Suggested designated truck

routes are provided in the next section. It is recommended that the County's Unified Development Code be amended to include the following list of primary and secondary truck routes subject to the design standards for truck routes, which are also outlined below.

## DESIGNATED TRUCK ROUTES

In order to determine the best routes for trucks carrying freight in and out of Douglas County, it is important to recognize and quantify the characteristics of these thoroughfares. The best choices include roads such as interstate highways, U.S. highways, state highways, and county arterials. Characteristics of these routes include wide lanes (12-foot or greater), greater numbers of lanes, higher design speeds, and superior maintenance schedules. These roads are the lifeblood of communities and, therefore, are very conducive to truck traffic. Figure 1 provides a map of the Douglas County transportation system.

The roads that have been identified as truck routes for Douglas County have been divided into two categories: primary truck routes and secondary truck routes. Primary truck routes are the highest quality, most direct and well travelled routes in the county. They will serve as the most important routes for the movement of goods through the county. Preferably, they would consist of a minimum of four lanes and provide a continuous route through the county. Secondary truck routes are also well maintained roads. However, they do not possess all of the qualities of the primary truck routes. Typically, they will consist of two lanes on portions of the route and/or they may not provide a continuous route through the county. Table 18 provides a table of the traffic counts and truck percentages for Douglas County truck routes in 2005 and 2030. The proposed primary and secondary routes are shown in Figure 40.

<b>Table 18: Douglas County Truck Route Traffic Counts</b>				
Route	2005 ADT	2005 % Trucks	2030 ADT	2030 % Trucks
<b>Primary Truck Routes</b>				
I-20	118,750	30	147,787	32
U.S. Hwy. 78	9,560	28	38,319	25
S.R. 92	31,630	30	47,956	31
S.R. 6	60,070	33	72,301	39
S.R. 5	31,930	28	51,173	26
<b>Secondary Truck Routes</b>				
S.R. 166	8,110	30	37,977	32
S.R. 61	8,970			
Capps Ferry Road		24	20,347	34
Post Road	10,380	27	24,458	24
Lee Road	17,820	29	23,661	25
Douglas Boulevard	13,340	16	22,037	18

Figure 40

## PRIMARY TRUCK ROUTES

Based on the understanding of the existing and forecasted flow of commodities into and out of Douglas County and other important factors, such as the weight of freight commodities, how many vehicles are carried per day, and the amount of inbound and outbound freight (see Figures 2 through 7), outlined in the Goods Movement Profile, the following routes are recommended as primary truck routes based on their ability to handle a higher volume of freight related travel.

### Interstate 20

Also known as Tom Murphy Freeway, I- 20, which carries almost 120,000 vehicles per day through Douglas County, runs west to east across the county. The route consists of six to eight lanes.

### US Highway 78

US Highway 78 lies north of Interstate 20 and runs west to east. It consists of two to four lanes with a continuous center turn lane on portions of the route. US 78 is also known as Bankhead Highway, Veterans Memorial Highway, and Broad Street.

### State Route 92

State Route 92, which carries over 30,000 vehicles per day through Douglas County, runs northwest to southeast across the county. It consists of two to four lanes, is median divided on portions of the route and has a continuous center turn lane on other portions. SR 92 is also known as Dallas Highway and Campbellton Street north of I-20 and Fairburn Road south of I-20.

### State Route 6

State Route 6, which carries approximately 60,000 vehicles per day across Douglas County, runs northwest to southeast across the eastern part of the county. It consists of four to eight lanes and is median divided. SR 6 is also known as Thornton Road.

### State Route 5

State Route 5, which carries over 30,000 vehicles per day, runs south to north across the center of the county. It consists of two to four lanes and is partially median divided. SR 5 is also known as Bill Arp Road.

## SECONDARY TRUCK ROUTES

Based on the same factors and research that identified primary truck routes in the county, secondary truck routes are not considered the principal means of truck travel, but are considered adequate to handle less volume and capacity than primary routes. The following routes have been identified as secondary truck routes within Douglas County.

### **State Route 166**

State Route 166 runs west to east across the southern part of Douglas County. It consists of two lanes with a continuous center turn lane on a portion of it. S.R. 166 is also known as J. Ebb Duncan Memorial Highway.

### **State Route 61**

State Route 61 runs south to north across the northwest corner of the county and consists of two lanes. It is also known as Dallas Highway and Villa Rica Highway.

### **Capps Ferry Road**

Capps Ferry Road runs south to north in the southern part of the county and consists of two lanes.

### **Post Road**

Post Road runs south to north along the western part of Douglas County and consists of two lanes.

### **Lee Road**

Lee Road is a short road that runs southwest to northeast on the east side of the county and consists of two lanes.

### **Douglas Boulevard**

Douglas Boulevard is a short road that runs west to east just south of Interstate 20 in the middle of the county. It consists of four lanes with a continuous center turn lane.

## **TRANSPORTATION RECOMMENDATIONS**

Increasing roadway capacity and operational improvements to the transportation corridors that share a significant amount of truck traffic in the county will improve access to the freight facilities along major corridors. Favorable access to freight intensive developments also involves sufficient road geometrics that facilitate smooth traffic flow and reduce the number of bottlenecks throughout the county's transportation system. The ability to move freight freely within the county is critical to attracting new industry, and the freight, goods and services transport system is vital to the mobility and productivity of the Douglas County area. As a result, an efficient and cost effective transport system is important to the competitive position of businesses and industries competing in the local and global economy. The following are recommendations to facilitate the continued ability of the county's transportation system to efficiently support logistics activities.

### **Key Truck Corridors**

Douglas County has a well developed network of roadways and truck routes that play specific roles in network distribution of goods. These routes are also responsible for

human transport and shared by local traffic. During the course of several public meetings held for the development of this transportation plan, the interaction between freight and regular passenger vehicles appeared to be a concern among county residents. The interface between trucks and passenger vehicles can be discouraged by identifying key truck corridors as well as alternative routes. By properly signing truck routes and indicating an alternative course for local drivers, the interaction between truck and regular traffic can be minimized. This is another important reason why the UDC should be amended to include a list of designated truck routes so that they may be properly indicated to local traffic.

The list of designated truck routes should be incorporated into Douglas County's UDC and be designed to handle the higher percentage of trucks and their heavier weights. For example, truck routes should be designed to have greater turning radii and wider shoulders to accommodate the difficult turning movements that must be made by trucks. Deficiencies on the identified key truck corridors should be addressed either with operational improvements (signalization improvements and ITS implementation are two potential examples) or with roadway improvements such as geometric improvements or additional capacity. There are also design strategies that can be implemented to improve corridor deficiencies on local roadways used by heavy trucks. Key truck corridors in the area should be designed with higher Pavement Condition Rating (PCR) values to accommodate the greater load weights that are placed on the facilities. These recommendations along with others are explained in further detail below.

### **Design Standards for Freight Infrastructure**

Officially recognized infrastructure and operational design guidelines implemented by all jurisdictional bodies within the study area are a fundamental element of effective freight and goods movement planning. Following are a few guidelines recommended to enhance Douglas County's freight movement capacity.

*Design Guidelines for Roadway Elements* - Truck traffic causes a disproportionate amount of roadway wear in comparison to passenger vehicle traffic. More substantial pavement sections should be used to accommodate the greater serviceability, reliability, and equivalent single axle loads (ESAL's) that will be needed for these routes. Designated truck routes should be designed to higher lane and curb lane widths, as well as shoulder widths. Pavement Condition Rating (PCR) values, as well as intersection radii should also be designed for a significantly higher volume of freight traffic than other facilities.

*Signalization Guidelines* - Special traffic signalization considerations should be made near freight facilities. Signal timing plans along freight corridors should be adjusted to account for the larger size and slower acceleration of trucks. It is essential that there exist inter-jurisdictional cooperation with respect to coordination of signal timing so that the maximum benefit of this strategy may be realized.

*Signage* - Guidelines for the design and placement of signs can facilitate the efficient movement of goods, especially for drivers not familiar with the area. This applies to roadway identification signs, as well as directional signs along a roadway. Areas that do not specify guidelines regarding the placement of address signs consequently

produce many businesses and residences that either lack address signs altogether or place signs in locations that are difficult to see from the street, making it difficult for unfamiliar delivery drivers to locate individual stops. This can result in delivery trucks having to stop several times to find the right location, which adds to congestion problems, VMT, fuel consumption and air pollution.

### **Incorporating Trucks into Traffic Design**

Truck turning radii on narrow roads and narrow roads with roadside ditches are impending issues facing process shippers and motor carriers. For a large truck, and especially for a driver unfamiliar with the surroundings, ditches can be hazardous; a solution might be a program to cover the trenches with grates, in heavily traveled freight zones. The same problem of road width is exacerbated in a different form by the encroachment of structures on the right of way. Traffic design issues often contribute to a less reliable freight network. By developing a defined network and understanding the specific freight roles played by the highways, roadway improvement strategies are likely to be more successful. There are several common areas of need for roadway design standards for truck activities:


- Intersection Design;
- Cross-Section and Geometric Design;
- Signalization; and
- Separation.

Intersection Design affects accessibility through delayed right turns due to oncoming traffic. To avoid oncoming traffic, trucks may be forced to “cut corners” onto curbs, while in other instances “curb hopping” may be attributed to lane-dividing medians. In either case, when forced onto curbs or medians while negotiating a right turn, trucks run the risk of load shifts and damage to the goods they carry, not to mention damage to the curbs and tracks themselves.

Left hand turning requirements can be accommodated by the use of offset turn lanes where vehicles are held back to a stop line short of an intersection. This creates a wider turning space for commercial vehicles negotiating the corner. Offset lanes were cited by motor carriers as sensible management for narrow road widths in districts with significant truck activity. One option to implement appropriate intersection design within the county would commence a general program to deploy such lanes, examining road widths in truck districts and introducing offsets where practical, over some defined period of time.

*Cross-Section and Geometric Design* – The geometry of a specific roadway, including the turning radii, lane widths, and other cross-sectional factors should be based upon the intended use or role of the facility. Interstate truck routes tend to accommodate large, as well as smaller trucks and, therefore, should be designed to accommodate those vehicles without creating significant traffic impacts. Local truck routes also need to accommodate larger and smaller truck sizes, and hence would have to be designed accordingly.

*Signalization* – Signal timing optimization is often performed using data collected from only one or two days and typically does not include truck volumes. Studies to develop better signal plans for heavily traveled truck corridors would benefit the



study area. The spacing of traffic signals and the individual timing patterns, while accounting for light-vehicle mobility, in many instances fails to account for the time it takes heavy truck traffic to attain a reasonable speed or to stop. Abrupt starting and stopping by heavy trucks wastes fuel, increases transport costs, and diminishes air quality. Truckers must maintain tight delivery schedules so the less delivery schedules are impeded by inadequate signalization or intersection maneuverability, the greater the ability for truck drivers to make multiple deliveries with one trip.

### TRANSPORTATION ANALYSIS SUMMARY

The Douglas County Area is an important freight and goods movement and distribution center within the Atlanta region. The area has great potential to improve goods movement within the county and throughout the region. Access to a network of truck routes and CSX rail lines provide the foundation of a network to facilitate freight mobility. Surrounding industrial and freight intensive land uses also offer support to goods movement in the area. As the area continues to grow and change, it will be important for planners and policy-makers to be proactive and ensure planning decisions are well-coordinated to avoid looming conflicts between land uses and transportation activities. Such coordination will also help facilitate sustaining additional economic activity while maintaining residents' quality of life.

## APPENDIX A: Douglas County Code Designated Truck Routes

### Douglas County Code

The board of commissioners does hereby declare that it shall promote the health, safety and general public welfare of the citizens of Douglas County by providing for regulations of the use of roads contained in the Douglas County road system pursuant to the authority granted in the Georgia Constitution, Article IX, Section II Paragraphs I and III and the Official Code of Georgia §§ 40-6-371 and 32-4-42. (Reg. of 5-7-96)

Sec. 14-72. Zones prohibiting trucks with more than six wheels.

(a) When the board of commissioners determines that the use of certain roads within the Douglas County road system by trucks with more than six (6) wheels is incompatible with the normal and safe movement of traffic, it may adopt a resolution establishing zones where trucks with more than six (6) wheels are prohibited except that local traffic shall be permitted. (b) Unless otherwise provided in the resolution, the trucks with more than six (6) wheels prohibited zone shall become effective upon the signing of the resolution and the placement of signs marking the zone. (c) Any owner, agent and/or driver of a truck with more than six (6) wheels that is found operating in a prohibited zone, other than local traffic, shall be in violation of this article. Any owner, agent and/or driver convicted of violating this article shall be punished by a fine not to exceed one thousand dollars (\$1,000.00) and/or sixty (60) days imprisonment or as otherwise provided by Georgia law. All Douglas County law enforcement personnel shall be authorized to enforce the provisions of this article.

### Trucks Over Six Wheels Prohibited Zones, Local Traffic Only Permitted:

Bowden Street from Bankhead Highway to Sweetwater Terrace;  
 Brewer Road between Mann Road and Stockmar Road;  
 Bright Star Road between Douglas Boulevard and State Route 5;  
 Bullard Road from Rock House Road to Douglas Hill Road;  
 Cave Springs Road between Chicago Avenue and State Route 92 North;  
 Cedar Terrace Road from Lee Road to Mount Vernon Road;  
 Chatham Place between Anneewakee Road and State Route 92;  
 Cherokee Boulevard between State Route 92 and Dodson Drive;  
 Cole Road from Ephesus Church Road to Liberty Road;  
 Colonial Trail from Midway Road West County Line Road;  
 Douglas Hill Road from Thornton Road to Bullard Road;  
 Echo Road from Riverside Parkway to Rock House Road;  
 Ephesus Church Road;  
 Factory Shoals Road between State Route 6 and Douglas Hill Road;  
 Hannah Road between State Route 166 and East Carroll Road;  
 Hill Street from Bankhead Highway to Highland Terrace;  
 Huey Road between Kemco Court and Maroney Mill Road;  
 Ivory Circle;  
 Jade Drive, between Berea Road and Highway 5;  
 John West Road between Bright Star Road and US Highway 78;  
 Kings Drive between Riverside Parkway and State Route 166;  
 Kull Drive from US Highway 78 to Old Beulah Road;  
 Mann Road between Cedar Mountain Road and Stockmar Road;

Maroney Mill Road between State Road 92 and US Highway 78;  
Mason Creek Road between State Route 5 and Dorset Shoals Road;  
McKown Road from South Burnt Hickory Road to Riley Road;  
Midway/Burnt Hickory Road between State Route 92 and US Highway 78;  
Mt. Vernon Road between Skyview Drive and South Sweetwater Road;  
North Anneewakee Road between Anneewakee Road and State Route 92;  
North County Line Road between Vulcan Drive and US Highway 78;  
North Helton Road from Post Road to Carroll County Line;  
Oak Hill Road from Chapel Hill Road to State Route 166;  
Old Beulah Road from Riley Road to US Highway 78;  
Riley Road from US Highway 78 to North County Line Road;  
Rock House Road between Riverside Parkway and Douglas Hill Road;  
Shawnee Trail from Slater Mill Road to Slater Mill Road;  
Skyview Drive between South Sweetwater Road and Mt. Vernon Road;  
Skyview Drive from Mt. Vernon Road to Maxham Road;  
South Flat Rock Road between Cedar Mountain Road and West Strickland Street;  
Strawn Road (Residential);  
Sullivan Drive from Midway Road to West County Line Road;  
Temple Street between North Sweetwater Road and the Cobb County Line;  
Timber Ridge Road from Chapel Hill Road to Slater Mill Road;  
Tyree Road between State Route 5 and East Carroll Road;  
Wenona Street from State Route 5 to West Stewarts Mill Road;  
West Stewart Mill Road;  
Wilson Road between State Route 5 and Tyree Road.  
(Res. of 5-7-96; Res. of 6-4-96; Res. of 11-19-96; Res. of 5-20-97; Res. of 9-16-97;  
Res. of 5-5-98; Res. of 5-19-98; Res. of 10-6-98; Res. of 12-15-98; Res. of 4-20-99;  
Res. of 6-15-99; Res. of 7-20-99; Res. of 2-15-00; Res. of 3-21-00; Ord. of 3-19-03;  
Amd. of 7-15-03; Amd. of 4-20-04)