# Appendix A
## Baseline Assessment Technical Analyses

### A.1. Transportation Assessment

### A.2. Land Use Assessment

### A.3. Urban Design Assessment

# Appendix A.1
## Transportation Assessment

### A.1.1. Multimodal Travel

The following section contains a baseline of transportation characteristics that lend themselves to assessing both short term and long term mobility needs in the Fulton Industrial Community Improvement District (CID) Master Plan study area. The focus of this analysis is to identify transportation improvements and initiatives to facilitate a healthy environment for economic development. Key characteristics addressed herein include:

- Existing Roadway Network
- Transit Service
- Bicycle and Pedestrian Network
- Network Connectivity
- Travel Demand Management
- Rail Network
- Fulton County Airport-Brown Field

The information contained in this section is a combination of data from local, regional, and state agency planning partners and that gathered from on-site field surveys.

#### A.1.1.1. Existing Roadway Network

The primary roadway network within the study area consists of the following roadways:

- Interstate 20 (I-20)
- Fulton Industrial Boulevard (FIB)
- Camp Creek Parkway
- Martin Luther King Jr. Boulevard (MLK)
- Cascade Road
- Campbellton Road

Of the roadways listed above, all but Cascade Road are state roadways. State roadways are eligible for a broader set of funding options for potential improvements.

##### Roadway Volumes and Congestion

A summary of the overall traffic characteristics of this network within the study area is provided in **Table A.1-1**. As shown, the most travelled roadway in the study area is I-20, with approximately 60,000 to 80,000 trips per day. However, given the scale of this study, this analysis concentrates on the surface street network within the study area. With that said, the most prevalent and critical roadway in the

study area is FIB. Pursuant to the Atlanta Regional Commission (ARC) travel demand model (TDM), existing volumes along FIB vary greatly. FIB from carries approximately 20,000 trips per day from MLK to Camp Creek Parkway. The segment of FIB between I-20 and Patton Drive SW carries approximately 30,000 trips per day. One can assume this is primarily due to traffic exiting I-20 to access commercial uses along this segment. As a connection to the Hartsfield-Jackson Atlanta International Airport (H-JAIA), Camp Creek Parkway also carries a significant amount of trips through the corridor at approximately 25,000 trips per day west of FIB and approximately 18,000 trips per day east of FIB.

**Table A.1-1** shows the number of trips throughout the study area to increasing significantly by 2040 based on the ARC TDM Projections. This is particularly true for the southern portion of the study area. Along the more developed portion of FIB, roadway volumes are projected to increase by approximately 40% between MLK and Bakers Ferry Road and by over 100% in segments further south.

The standard measurement of congestion is level of service (LOS). **Table A.1-1** lists the AADT and LOS for study area roadways. A generalized description of roadways under each LOS category is as follows:

- LOS A – Best driving conditions: With little traffic on the road, drivers experience little or no delay
- LOS B – Drivers perceive some delay, but traffic is reasonably free-flowing
- LOS C – Drivers slow down and may have to wait at intersections
- LOS D – Drivers travel at speeds below that of the posted speed limit and are delayed by considerable waits at intersections
- LOS E – Drivers travel very slowly and are delayed frequently by prolonged stops at intersections and on roadways
- LOS F – Worst driving conditions: Drivers experience heavy traffic, extreme delays, and long queues at intersections

Based on the information provided in **Table A.1-1**, the following insights regarding existing and future conditions along the major network of the study area can be made:

- While the overall congestion levels vary throughout the corridor, much of the roadway network is projected to operate under congested conditions in 2040.
- The most congested facility in the study area is I-20, operating at LOS F throughout its length in the study area. It is projected to continue to operate at LOS F in 2040.
- Congestion levels along FIB are fairly moderate when compared to other high volume roadways in the region. The most congested segment is just south of I-20 between I-20 and Patton Drive. Even with the significant growth projected in volumes, most of the roadway is projected to operate at LOS D or better in 2040 – which is generally better than other major roadways in the region. This can be attributed, in part, to the planned widening of FIB from south of Bakers Ferry Road to Camp Creek Parkway; however, it should be noted that LOS is a function of volume and capacity and other factors, such as truck traffic, are sometimes not fully captured.
- Of the surface streets in the study area, Camp Creek Parkway is the most congested. All segments west of FIB are currently operating at LOS F and all of the segments within the study area are projected to be heavily congested in 2040.

**TABLE A.1-1: KEY ROADWAY NETWORK CHARACTERISTICS**

| Roadway | From | To | Number of Lanes | 2010 AADT | 2010 LOS | 2040 AADT | 2040 LOS | % Change AADT |
|---|---|---|---|---|---|---|---|---|
| I-20 | I-285 | FIB | 6 | 77,028 | F | 99,046 | F | 28.6% |
| | FIB | Cobb County | 6 | 60,765 | F | 76,950 | F | 26.6% |
| Fulton Industrial Boulevard (FIB) | MLK | I-20 | 6 | 17,350 | C | 23,792 | C | 37.1% |
| | I-20 | Patton Dr | 6 | 30,411 | F | 41,603 | F | 36.8% |
| | Patton Dr | Bakers Ferry Rd (N) | 6 | 18,854 | C | 26,284 | D | 39.4% |
| | Bakers Ferry Rd (N) | Cascade Rd | 4/6 | 17,882 | D | 30,306 | D | 69.5% |
| | Cascade Rd | Camp Creek Parkway | 4 | 20,040 | D | 35,692 | E | 78.1% |
| | Camp Creek Parkway | Boat Rock Rd | 4 | 11,696 | C | 26,146 | D | 123.5% |
| | Boat Rock Rd | Riverside Dr | 4 | 10,455 | B | 26,300 | C | 151.6% |
| | Riverside Dr | Campbellton Rd | 4 | 5,735 | B | 20,275 | C | 253.5% |
| Camp Creek Parkway | Cobb County | Bakers Ferry Rd (S) | 4 | 25,727 | F | 36,406 | F | 41.5% |
| | Bakers Ferry Rd (S) | FIB | 4 | 23,113 | F | 34,059 | F | 47.4% |
| | FIB | Boat Rock Rd | 4 | 18,206 | D | 27,520 | F | 51.2% |
| | Boat Rock Rd | Campbellton Rd | 4 | 16,746 | C | 22,236 | E | 32.8% |
| MLK | FIB | I-20 | 4 | 9,930 | E | 12,833 | F | 29.2% |
| | FIB | Cobb County | 4 | 16,380 | F | 22,006 | F | 34.3% |
| Campbellton Road | FIB | Cobb County | 2 | 12,211 | F | 25,929 | F | 112.3% |
| Cascade Road | FIB | Carlo Woods Dr | 2 | 5,869 | C | 11,393 | F | 94.1% |
| Bakers Ferry Rd (N) | FIB | Wendell Dr | 2 | 3,867 | C | 6,168 | D | 59.5% |

*Source: Atlanta Regional Commission*

*Notes:*

1) *2040 roadway characteristics assume: 1) the widening of FIB from 4 to 6 lanes to Camp Creek Parkway; and 2) the widening of Campbellton Road from 2 to 4 lanes west of FIB.*
2) *There are two roadways in the study area named Bakers Ferry Road.*
3) *AADT = Average Annual Daily Traffic (Trips per Day)*
4) *LOS = Level of Service (see previous page)*

### Roadway Safety

A key factor in identifying potential locations for improvements is safety. Locations with crashes, particularly multiple crashes, are typically in need of operational improvements. These improvements could include turn lanes, wider shoulders, or traffic signalization improvements. A map of automobile crash locations within the study area in 2012 is provided in **Figure A.1-1**. Please note that truck crashes and related safety items are addressed separately in Section A.1.2 (see also **Figure A.1-4**).

- In general, crash locations in the study area correlate with segments with higher volumes – particularly along FIB and I-20 near the interchange.
- Pursuant to GDOT data, a significant number of crashes resulted in injury.
- In 2012, most of the automobile crashes along FIB occurred between MLK and Mendel Drive. There was also a concentration of crashes, or "hot spot", along FIB between Cascade Road and Camp Creek Parkway.
- When compared to the number of crashes in the Douglas County segments, the number of accidents along Camp Creek Parkway within the study area is relatively low. There were only two crash sites along Camp Creek Parkway in the study area; however, there were 11 crashes at the intersection with FIB.
- The highest crash locations in the study area were FIB intersections with Campbellton Road (12), Camp Creek Parkway (11), I-20 ramps (11), and MLK (10).
- Despite being local roads, the intersection of Frederick Drive and Fulton Industrial Circle had the fifth highest number of crashes in the study area, with eight. Pursuant to stakeholder feedback, this is attributed to topographical issues on Fulton Industrial Circle and the proliferation of impaired driving in the area associated with nearby adult uses.

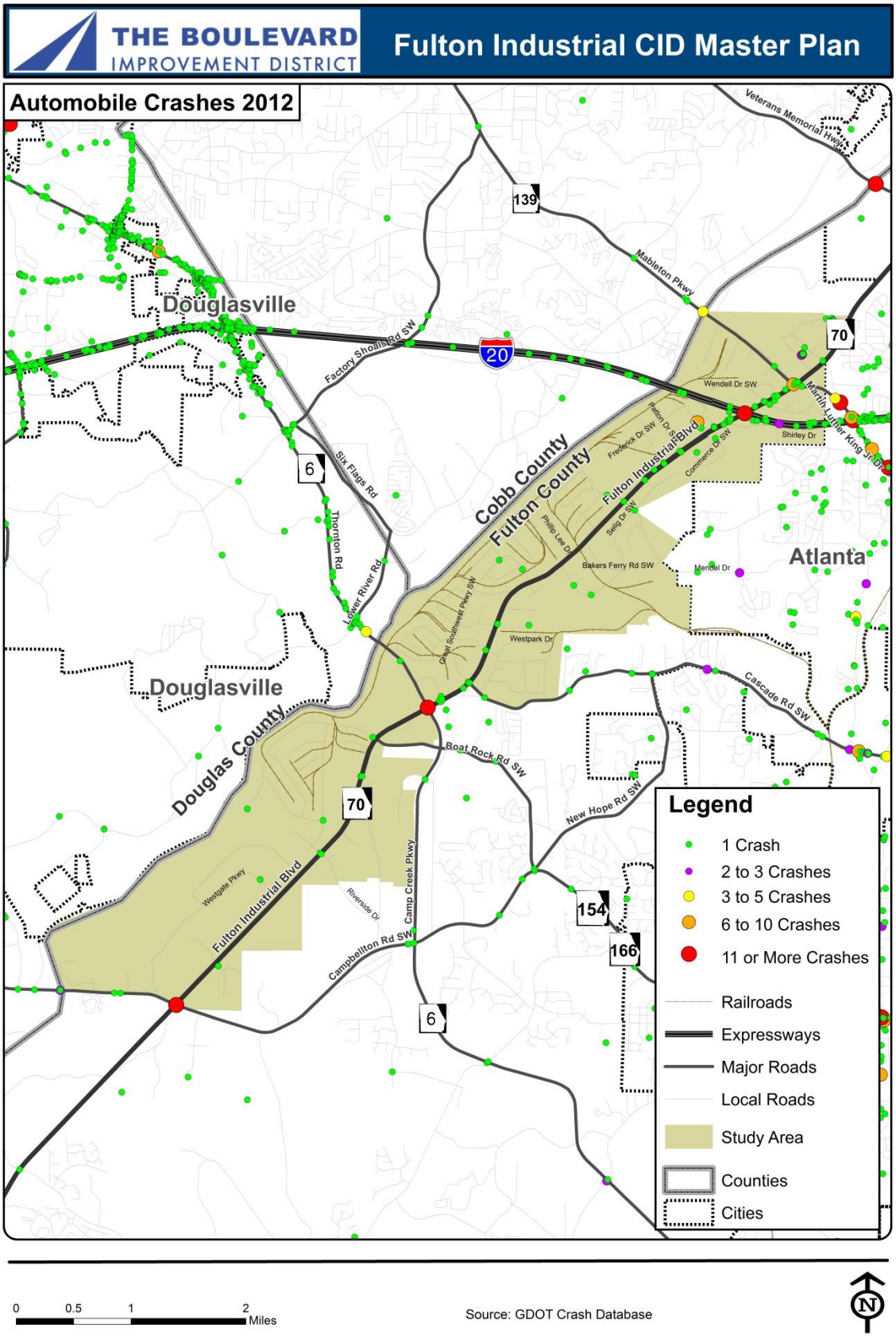
## A.1.1.2. Planned and Programmed Roadway Improvements

The ARC PLAN 2040 is the regional long range transportation plan for the Atlanta area. As such, the plan contains both planned and programmed improvements for the region. Planned improvements are those improvements that are documented in the plan as needed but do not have a funding source identified; programmed improvements are those improvements that are documented in the plan as needed and do have a funding source identified. Within the study area, there are three planned improvements for network year 2030 within PLAN 2040:

- Widening of FIB from 4 to 6 lanes from I-20 to Camp Creek Parkway (FS-003)
- Widening of FIB from 4 to 6 lanes from Camp Creek Parkway to Campbellton Road (FS-225)
- Widening of Campbellton Road from 2 to 4 lanes from Douglas County to FIB (DO-019)

There are no bicycle and transit projects planned in the study area.

**FIGURE A.1-1. AUTOMOBILE CRASH LOCATIONS**



### A.1.1.3. Transit Service

Transit service in the study area is provided by the Metropolitan Atlanta Rapid Transit Authority (MARTA), but is limited to one route – Route 73. This route, called Fulton Industrial, provides service from the MARTA H.E. Holmes heavy rail transit station to the study area.

From H.E. Holmes, the route generally runs along MLK to FIB, then south along FIB to Tradewater Parkway, then west to LaGrange Boulevard, then north to Boat Rock Road, then east across FIB and Camp Creek Parkway to Bakers Ferry Road, then north along FIB to MLK, and east along MLK to H.E. Holmes. A map of the bus stops along this route within the study is provided in **Figure A.1-2**.

Service information and the average daily boardings (from August through December 2012) by location for Route 73 were provided by MARTA staff. Based on data received, the service characteristics of this route include the following:

- Route 73 currently operates on headways (service frequency) of approximately every 15-20 minutes in during the weekdays and every 20 minutes on Saturdays and Sundays.
- The average weekday ridership is approximately 4,400 riders per day. Approximately 1,250 boardings, or 30%, were in the study area.
- There are a total of 84 stops within the study area – 56 of which are along FIB.
- The travel time from each end of the route to the other (LaGrange and Boat Rock Road to H.E. Holmes) is approximately 35-40 minutes, based on the posted schedule.

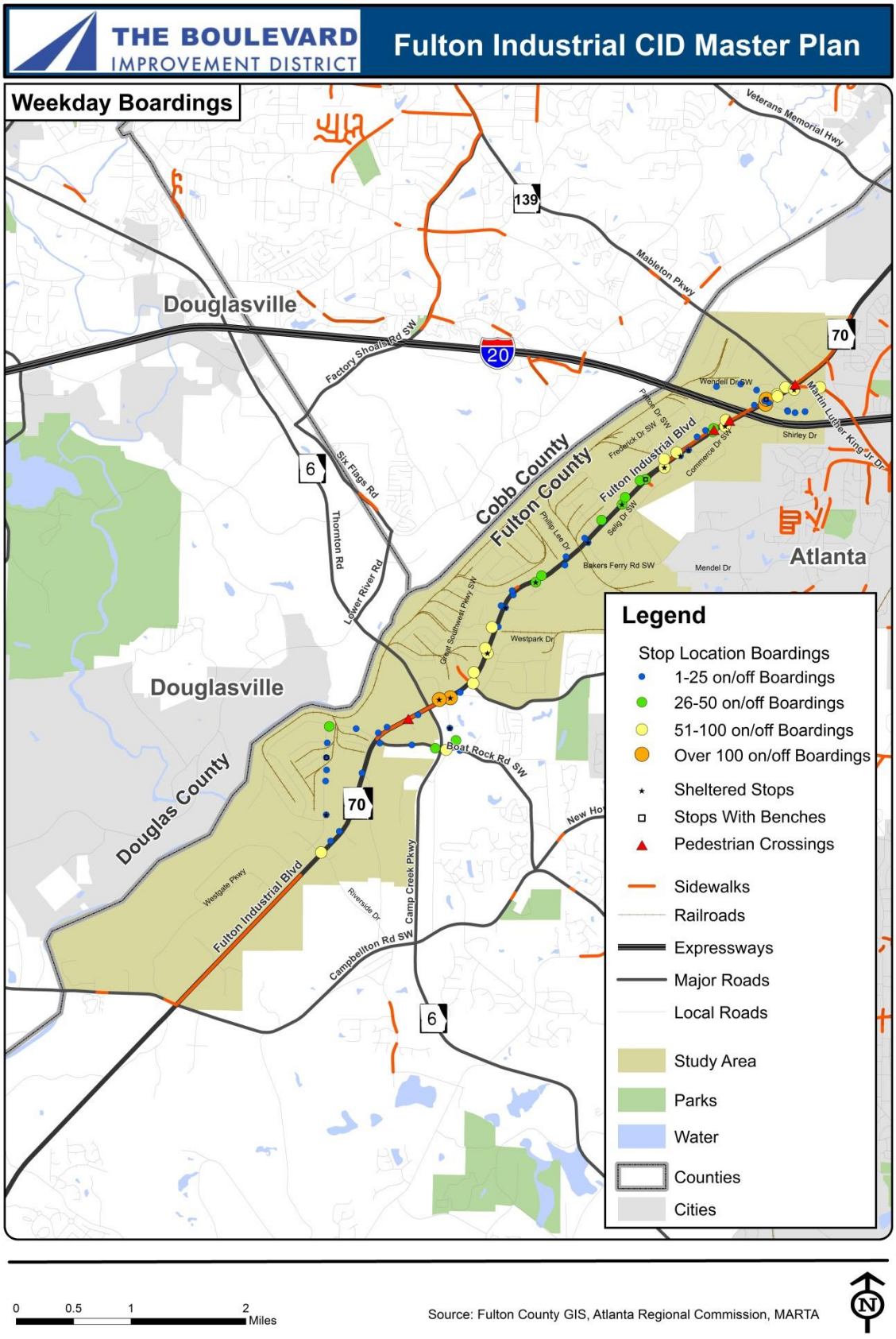
It should be noted that MARTA once operated a limited stop route, Route 273, which served the FIB area during the peak hour. This service was discontinued in 2010 due to budget cuts. While ridership on the route was fairly steady, it was determined by MARTA staff that nearly all of the riders of this route were being taken from those along Route 73. Therefore, there were very few new riders introduced to the MARTA system as a result of the service.

Another important aspect of transit service is the amenities that make ridership more attractive and comfortable. The stops with amenities such as shelters and benches along with average daily boardings are also shown in **Figure A.1-2**. Of the 84 bus stops within the study area, 13 are sheltered and three have benches. In many cases, these amenities are placed in locations with higher average boardings; however, there are several stops along Route 73 with high boarding totals along FIB that do not have shelters:

- Between MLK and Commerce Drive; and
- Between Cascade Road and Bucknell Drive.

The Georgia Regional Transportation Authority (GRTA) offers express service, called Xpress, from suburban areas to employment centers throughout the region. However, there is currently no express service to the study area.

**FIGURE A.1-2. ROUTE 73 BUS STOP LOCATIONS WITH BOARDINGS AND AMENITIES**



### A.1.1.4.Bicycle and Pedestrian Network

While often overlooked, bicycle and pedestrian facilities provide mobility albeit at a localized scale. Providing access to nearby businesses, transit stops and/or other amenities can help maintain a vibrant economy in the study area. Bicycle and pedestrian facilities are very limited within the study area. There are no bicycle facilities such as bike lanes, paths, etc.; therefore, facilities are limited to the sidewalk network and pedestrian crossings, which are shown in **Figure A.1-3**.

The pedestrian network within the study area is primarily limited to those along FIB. Most can be found between MLK and Patton Drive. There are sidewalks on both sides of FIB between MLK and I-20. South of I-20 to Patton Drive, the sidewalks along FIB start to become disjointed. Through this area, there are multiple inconsistently marked curb cuts and access points. South of Patton Drive, sidewalks are limited to those in the vicinity of the Camp Creek Parkway intersection and disjointed segments that appear to have been constructed as a condition of development.

A clear indicator of pedestrian travel is the presence of worn paths along roadways where sidewalks do not exist. As part of this effort, a field survey was conducted to identify such areas. The two areas identified were:

- East side of FIB from Robinson Drive to Shirley Drive (approximately 5,000 feet)
- West side of FIB from Patton Drive to Frederick Drive (approximately 1,500 feet)

#### Transit and Pedestrian Connections

Pedestrian facilities are an important factor in making transit usage more attractive by providing safe connections to nearby employment and retail opportunities. A map of the pedestrian facilities in relation to transit stops is provided in Figure A.1-4. As shown, there is a general lack of pedestrian connectivity to transit within the study area. This is especially relevant in the areas between Camp Creek Parkway and Bucknell Drive, where there are several stops with a high number of boardings without pedestrian access. Furthermore, limited pedestrian crosswalks on FIB, only four, is a hindrance to transit ridership. Given the lack of bicycle and pedestrian facilities in the area, the number of 2012 bicycle and pedestrian crashes in the study area was extremely low. In 2012, there were a total of three crashes in the study area, all pedestrian-related.

### A.1.1.5. Network Connectivity

Given the presence of one transit route in conjunction with a disjointed sidewalk network and complete lack of bicycle facilities, the two types of connectivity relevant to this effort are roadway network connectivity and multimodal connectivity. Given the barriers presented by the Chattahoochee River to the west and low-density residential uses to the east, the roadway network is almost completely reliant upon FIB for travel both within and outside the corridor. I-20, Camp Creek Parkway and Campbellton Road provide access to points outside the study area; however, accessing any of these roads from most of the study area network requires travel along FIB because most of the secondary roads either loop back to FIB or feed into roads that do so. In summary, the roadway network connectivity is poor. Overall multimodal connectivity in the study area is also lacking: there is a lack of pedestrian connectivity between transit, employment, and activity centers in the study area.

**FIGURE A.1-3. PEDESTRIAN FACILITIES**

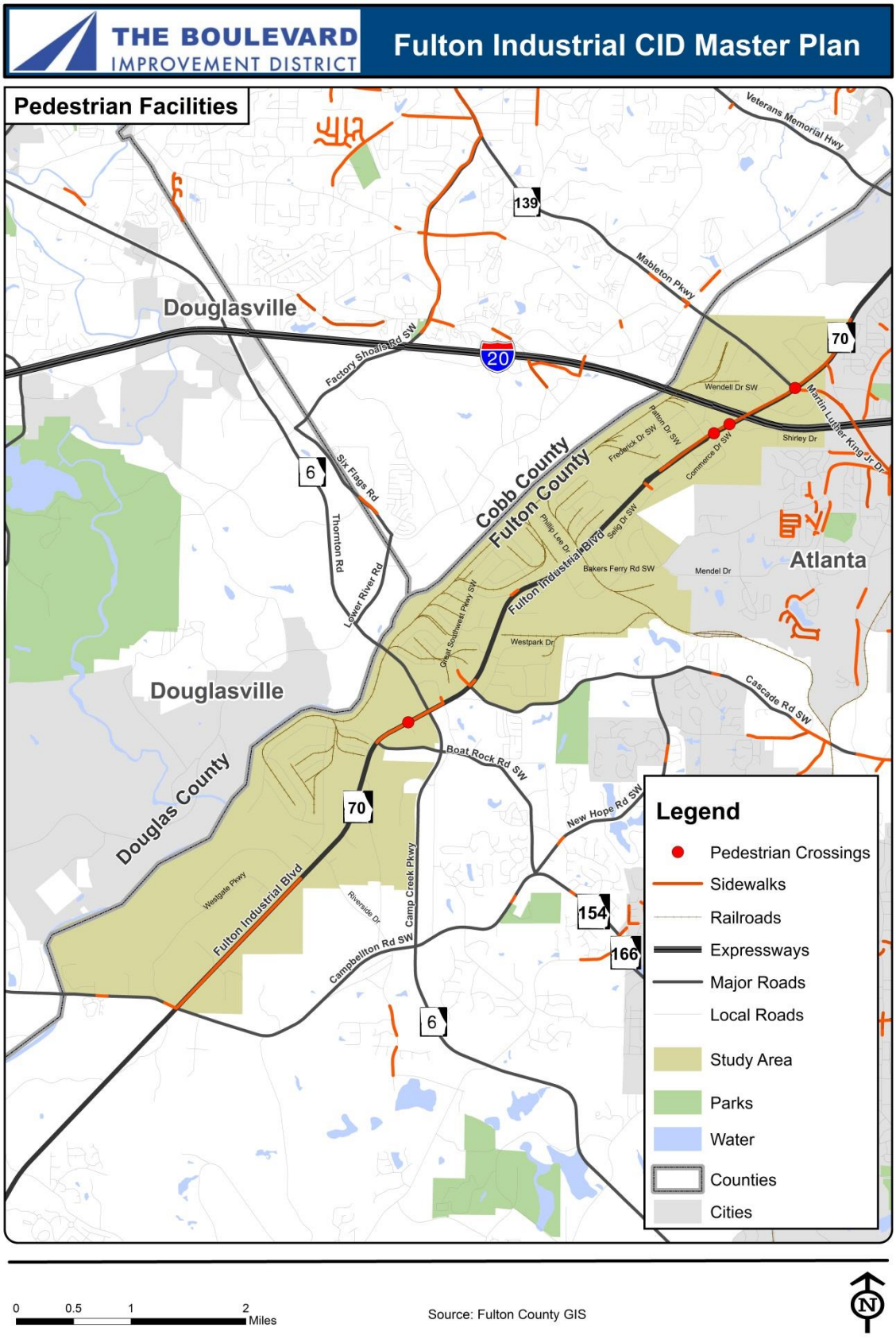
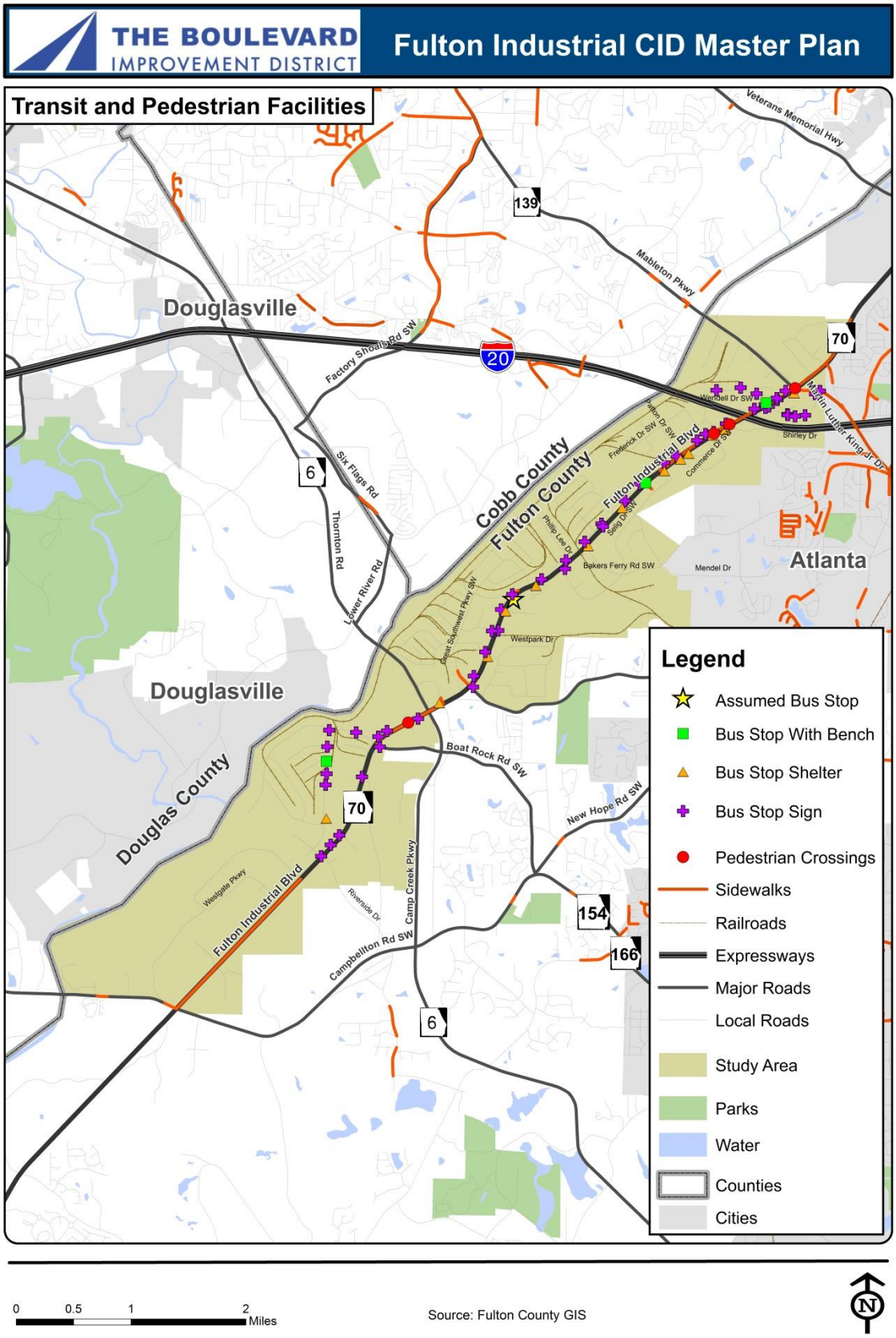


**FIGURE A.1-4.TRANSIT AND PEDESTRIAN FACILITIES**



### A.1.1.6. Travel Demand Management

Pursuant to the ARC Regional TDM Inventory Baseline Report (TDM Report), travel demand management (TDM) is defined as a means to assist people "to change their travel behavior to meet their travel needs by using different modes, traveling at different times, making fewer or shorter trips, or taking different routes." In other words, it is a means to reduce the number of single-occupied vehicles in order to promote efficient use of the transportation network.

Traditional TDM techniques include employee-based rideshares, vanpools, and telecommuting. However, the ARC is working to expand the practice, known as TDM+, to include other means of reducing travel demand such as promoting walking, cycling, and transit use.

As stated in previous sections of this report, there is no GRTA Xpress service to the FIB corridor. The MARTA Route 73 provides frequent service to limited areas, as is the case with many local MARTA routes. In conjunction with the minimal bicycle and pedestrian network, the current infrastructure within FIB presents challenges for TDM activities.

### A.1.1.7. Fulton County Airport

The Fulton County Airport, also known as Charlie Brown Field, is a publicly-owned airport located at the northern end of the study area. According to the FAA Master Record and Reports, the facility has three runways and carries approximately 300 operations per day. As a local Class D airport, the air traffic is primarily limited to smaller craft utilized for personal or business travel; therefore, there are no freight operations at the facility and, as result, very little truck traffic is generated by the facility. Given these characteristics, the facility itself has very little influence on travel patterns in the study area.

### A.1.1.8. Key Multimodal Findings

Based on the analysis within, the following key findings can be derived regarding the multimodal network:

- There is a significant growth in roadway volumes throughout the study area projected in 2040. This is particularly true for roadways at the southern portion of the FIB corridor. With these projected increases the levels of congestion along Camp Creek Parkway and other supporting east-west roadways (i.e., Campbellton Road, Cascade Road, et. al.) LOS along FIB is projected to remain relatively steady through 2040. This is due primarily to the planned widening of FIB to six lanes through to Camp Creek Parkway.
- With no GRTA service, transit in the study area is limited to the MARTA Route 73. While the route runs at 15 minute headways, which is relatively good for MARTA service, the route is somewhat long with respect to time. Because of this length of time per trip in conjunction with the limitations of the MARTA service area (only providing service from east of the corridor), transit access to potential workers in the area.
- With respect to transit amenities, there are 13 sheltered stops and three stops with benches of the 84 bus stops in the study area. In many cases, these amenities are placed in locations with

higher average boardings; however, there are several stops along Route 73 with high boarding totals that do not have shelters along these portions of FIB:
  - Between MLK and Commerce Drive; and
  - Between Cascade Road and Bucknell Drive.
- There is a very limited bicycle and pedestrian network in the study area.

### A.1.1.9. Multimodal Issues and Opportunities

Based on the key findings presented within, the following **Table A.1-2** summarizes multimodal issues and opportunities with respect to multimodal travel.

**TABLE A.1-2. MULTIMODAL ISSUES AND OPPORTUNITIES**

| Issue | Opportunity |
|---|---|
| High levels of congestion projected for east-west roadways within the study area. | Coordinate with the South Fulton Comprehensive Transportation Plan (CTP) effort to ensure these needs are addressed. |
| There is a mismatch between transit amenities along Route 73 with respect to boardings and the travel time along the route is somewhat lengthy. | Coordinate with MARTA to place and/or move shelters to stops with more boardings and investigate potential serviced enhancements to improve travel times. |
| There is currently no Xpress service in the corridor. | Coordinate with GRTA to investigate feasibility of service.[1] |
| The bicycle and pedestrian network is limited. | Coordinate with ARC and South Fulton CTP to ensure these needs are addressed. The ARC Last Mile Program is specifically set up for pedestrian connections to transit stops. |
| There are only four pedestrian crossings of FIB in the study area. | Coordinate with GDOT and ARC to increase pedestrian crossings at signalized intersections. This is particularly needed in the northern portion of the corridor and in areas with high transit boardings. |
| The presence of high truck volumes, high travel speeds, and multiple driveways (in the northern portion of the corridor) make the implementation of bike lanes along FIB complicated. | Coordinate with GDOT to investigate whether significant right-of-way exists to develop a multi-use trail along the side of FIB separate from the travel lanes. |
| There is a high crash rate along FIB near I-20 and at the intersections of Camp Creek Parkway and Campbellton Road. | Coordinate with the ARC and Douglas County to apply for funds under the Roadway Safety and Operations Program. |
| The presence of the Fulton County Airport is a potential economic generator in the corridor. | Coordinate with Fulton County to investigate potential additional funding sources for FIB improvements. |

[1] While there is a great deal of employment in the corridor, it is somewhat less dense given its manufacturing base than the office-oriented employment centers such as Perimeter, Midtown, et. al. Therefore, express service may not be viable.

# A.1.2. FREIGHT MOBILITY

Given the size and concentration of industrial development within the study area, freight mobility is a critical component to doing business in the FIB corridor. The ARC has documented its recognition of the importance of FIB to freight mobility in the region. The purpose of this section is to provide an overview of freight mobility characteristics within the study area. This section addresses the regional policy framework for freight mobility and some of the existing and projected conditions in the study area. This information provides the groundwork for developing recommendations for freight mobility improvements that serve to promote the vitality of the industries within the FIB corridor.

## A.1.2.1. Regional Freight Policy Framework

The importance of freight mobility in the study area cannot be understated. The ARC, in conjunction with GDOT, has undertaken two significant efforts to identify freight issues and develop policy recommendations to facilitate freight mobility throughout the Atlanta region:

- Atlanta Regional Freight Mobility Plan (2008); and
- Atlanta Strategic Regional Truck Master Plan (2009)

Highlights from these documents related to the study area include the following:

- FIB was identified by stakeholders, along with Downtown Atlanta and Marietta, as a "congested zone with prolonged travel times due to recurring congestion."
- The Fulton Industrial area was identified as one of two prominent industrial corridors in the region (along with the I-85 corridor).
- FIB was identified as a "stem" route, meaning it is often an origin and destination point for the same freight trip. However, the trip ends are not necessarily directly located on FIB. For example, a trip from Great Southwest Parkway to Patton Drive would be considered such a trip because both locations require travel along FIB for access.
- The Camp Creek Parkway connection from Hartsfield-Jackson Atlanta International Airport (H-JAIA) to I-20 was the only non-interstate corridor that carried comparable truck volumes as the interstate system.
- The FIB area was identified as one of two most prevalent prospective rail-served sites for industrial redevelopment in the region; however, parcel consolidation, a variety of upgrades and the revitalization of rail service were cited as needs for this to occur.
- Based on its freight function, FIB is classified as a regional north-south truck route the Atlanta Strategic Regional Truck Master Plan. Camp Creek Parkway is considered a regional connector between east-west (I-20) and north-south (I-75) corridors.

## A.1.2.2. Existing and Projected Freight Characteristics

### Freight Volumes and Trip Share

A summary of the freight mobility characteristics within the study area is provided in Table A.1-2. This data, developed by the ARC, is very similar to that presented in Table A.1-1 but is specific to trucks. As would be expected from an interstate facility, I-20 carries the highest volumes of freight traffic with approximately 8,000 to 10,000 trips per day. *As previously noted, this analysis concentrates on the surface street network within the study area.*

The most critical street is FIB. In general, FIB carries approximately 8,000 truck trips per day MLK to Camp Creek Parkway. With roughly 6-7% truck traffic, FIB carries a higher share of freight traffic than similar arterials throughout the region, which is typically 3-4%. A notable exception along FIB is that segment of FIB between I-20 and Patton Drive SW. While it carries the most traffic of all segments of FIB with approximately 30,000 trips per day, approximately 4,000 of those are truck trips. Much like general auto traffic, one can assume this is due primarily to traffic exiting I-20 to access some of the commercial uses along this segment. Camp Creek Parkway also carries a significant amount of truck trips through the corridor at approximately 3,000 trips per day, representing a trip share of approximately 10%.

As with auto trips, the ARC TDM projects the number of truck trips throughout the study area to increase significantly by 2040. This is particularly true for the southern portion of the study area. As shown, the percentage of freight traffic along FIB is projected to increase by roughly 95% south of Camp Creek Parkway by 2040. This is consistent with the overall growth in auto trips projected along the corridor. Likewise, increases in truck volumes and the percentage of truck trips along Camp Creek Parkway are also consistent with the overall trip growth rates for the roadway.

**TABLE A.1-2.: KEY FREIGHT MOBILITY CHARACTERISTICS**

| Roadway | From | To | 2010 Truck AADT | % Truck AADT 2010 | 2040 Truck AADT | % Truck AADT 2040 | % Change Truck AADT 2010-2040 |
|---|---|---|---|---|---|---|---|
| I-20 | I-285 | FIB | 10,243 | 13.3% | 11,538 | 11.6% | 12.6% |
| | FIB | Cobb County | 7,898 | 13.0% | 9,263 | 12.0% | 17.3% |
| Fulton Industrial Boulevard (FIB) | MLK | I-20 | 885 | 5.1% | 1,140 | 4.8% | 28.8% |
| | I-20 | Patton Dr | 4,159 | 13.7% | 4,115 | 9.9% | -1.1% |
| | Patton Dr | Bakers Ferry Rd (N) | 772 | 4.1% | 2,044 | 7.8% | 164.8% |
| | Bakers Ferry Rd (N) | Cascade Rd | 1,252 | 7.0% | 2,248 | 7.4% | 79.6% |
| | Cascade Rd | Camp Creek Parkway | 1,108 | 5.5% | 1,526 | 4.3% | 37.7% |
| | Camp Creek Parkway | Boat Rock Rd | 716 | 6.1% | 1,256 | 4.8% | 75.4% |
| | Boat Rock Rd | Riverside Dr | 563 | 5.4% | 1,120 | 4.3% | 98.9% |
| | Riverside Dr | Campbellton Rd | 200 | 3.5% | 761 | 3.8% | 280.5% |
| Camp Creek Parkway | Cobb County | Bakers Ferry Rd (S) | 1,363 | 5.3% | 2,458 | 6.8% | 80.3% |
| | Bakers Ferry Rd (S) | FIB | 2,189 | 9.5% | 3,491 | 10.2% | 59.5% |
| | FIB | Boat Rock Rd | 1,708 | 9.4% | 2,943 | 10.7% | 72.3% |
| | Boat Rock Rd | Campbellton Rd | 1,688 | 10.1% | 2,891 | 13.0% | 71.3% |
| MLK | FIB | I-20 | 952 | 9.6% | 987 | 7.7% | 3.7% |
| | FIB | Cobb County | 1,288 | 7.9% | 1,318 | 6.0% | 2.3% |
| Campbellton Road | FIB | Cobb County | 545 | 4.5% | 1,321 | 5.1% | 142.4% |
| Cascade Road SW | FIB | Carlo Woods Dr | 508 | 8.7% | 825 | 7.2% | 62.4% |
| Bakers Ferry Rd (N) | FIB | Wendell Rd | 103 | 2.7% | 296 | 4.8% | 187.4% |

*Source: Atlanta Regional Commission*

*Notes:*

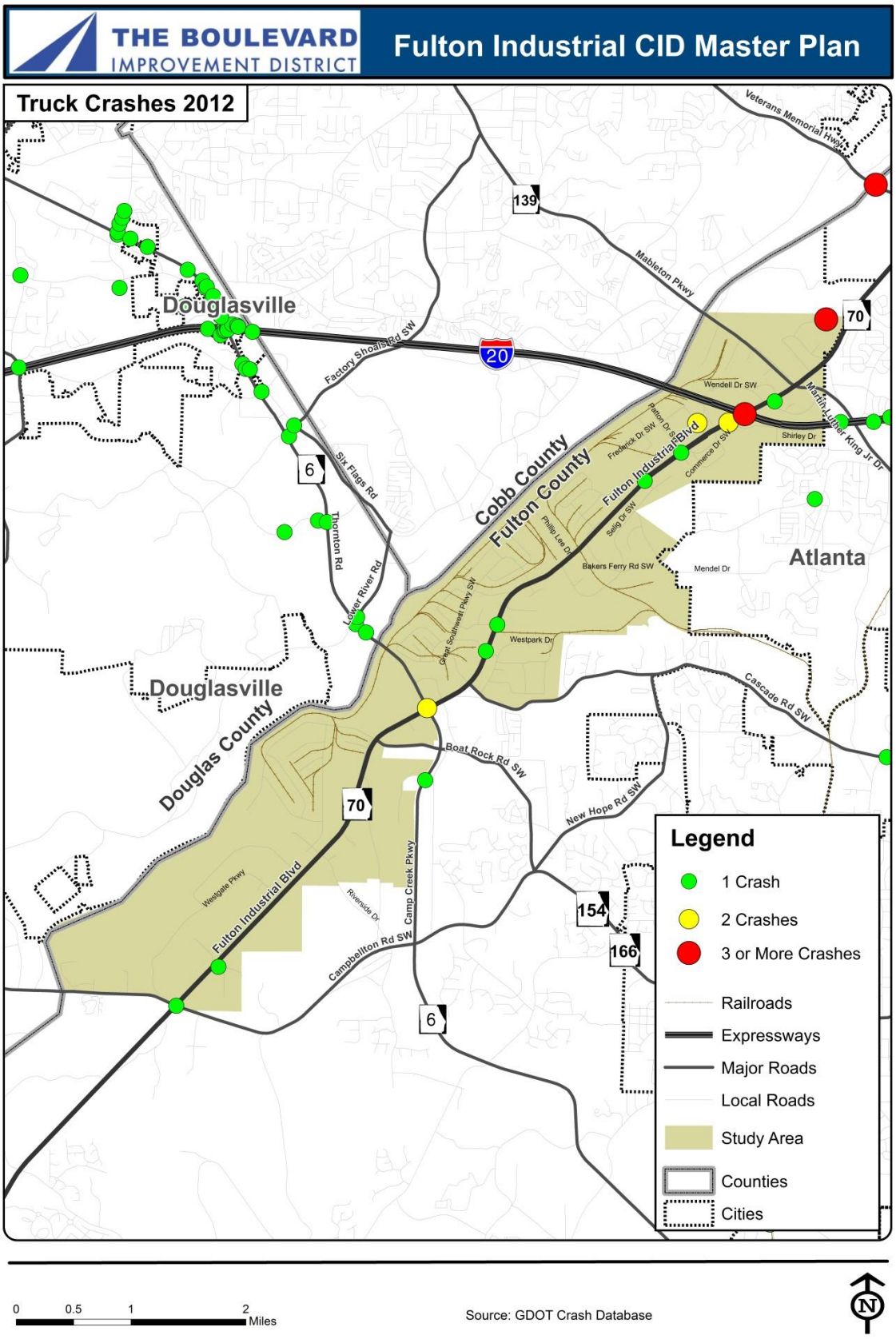
1) *2040 roadway characteristics assume: 1) the widening of FIB from 4 to 6 lanes to Camp Creek Parkway; and 2) the widening of Campbellton Road from 2 to 4 lanes west of FIB.*
2) *There are two roadways in the study area named Bakers Ferry Road.*

### Freight Safety

Just as with general auto traffic crashes, the location of truck crashes can serve as an indicator of potential locations where better freight operations are needed. A map of truck crash locations within the study area in 2012 is provided in Figure A.1-5. Based on this information, the following characteristics are of particular note:

- Crash locations in the study area generally correlate with segments that have higher volumes and auto accident rates.
- Most truck crashes along FIB occurred near I-20. FIB and I-20 ramps had the highest number of truck crashes with three.
- There were two truck crashes at Frederick Drive and Fulton Industrial Circle, an intersection with very low volumes. This intersection also had a high number of auto crashes with eight.

**FIGURE A.1-5. FREIGHT CRASH LOCATIONS**



### Roadway Geometrics

An important aspect of freight mobility is ensuring adequate roadway geometrics exist to facilitate turn movements within the study area. In order to assess this characteristic, a field survey was conducted to review the turn radii along the corridor and damaged medians, radii and sidewalks along the corridor. The results of the field survey identified two turning radii at major FIB intersections that were deficient. These were located at Shirley Drive and Cascade Road. However, damaged infrastructure was observed throughout the FIB corridor. **Table A.1-3** contains a complete list of deficiencies identified through this process. Most of the damage to the turning radii, medians and ADA ramps are attributed to truck traffic.

Other observations included:

- The additional acceleration time for trucks at traffic signals is a major cause of delay along the corridor.
- Excessive rutting and skid patterns at intersections were not observed.
- Most of the damage was observed at unsignalized intersections, where trucks have to turn at higher speeds to enter faster flowing traffic.

## A.1.2.3. Rail Network

The presence of rail operations is an important factor when considering alternatives to promoting freight mobility. It can influence truck movements and impact overall freight mobility. The rail system in the area is called the Fulton County Railway (FCR). The line is owned by CSX and operated by a third-party company called OmniTRAX. As shown in the study area map (**Figure 1.2** in main report), it is a relatively small rail system that consists of 55 miles of a rail line with numerous spur lines connecting to a trunk line that ultimately connects to the CSX ACL line. In turn, the CSX ACL line connects to the Tilford Yard and Howell's Yard CSX facilities to the north. There is only one rail crossing of FIB, located near Bakers Ferry Road, that crosses via underpass.

The rail network in the study area is underutilized. Pursuant to GDOT Office of Intermodal Transportation, the line carried 0-4 trains per day in 2009 (which is the most current data available). Given the limited service area of this network and the absence of at-grade crossings along FIB, the potential for rail operations to influence mobility in the study area is negligible; however, it should be noted that increased use of the FCR could influence freight mobility in the future.

**TABLE A.1-3. INVENTORY OF INTERSECTION DEFICIENCIES**

| | Location | Deficiency/Notes | Recommended Improvement |
|---|---|---|---|
| 1 | Wendell Drive (Signalized) | Radii damaged FIB WB & EB right turn; Median nose damaged EB left turn. | Replace damaged radii and median noses. |
| 2 | I-20 West (Signalized) | Radius damaged I-20 Off Ramp EB right turn; Radius/S.W./ guardrail/curb/ median nose damaged I-20 On Ramp FIB EB left turn. | Replace damaged radii/ median noses/ S.W./ guardrail. |
| 3 | I-20 East (Signalized) | Radius/ S.W. damaged I-20 Off Ramp WB right turn; Radius/S.W. damaged I-20 On Ramp FIB WB left turn. | Replace damaged radii and S.W. |
| 4 | Shirley Drive (Signalized)* | Median noses damaged; both Shirley Dr radii damaged. | Replace damaged radii and median noses. |
| 5 | Commerce Drive (Signalized) | Median nose damage; both Commerce Dr radii damaged incl. drainage structure, asphalt very worn. | Replace damaged radii and median noses. Repair asphalt. |
| 6 | Patton Drive (Signalized) | FIB EB right turn radius/ drainage damaged. | Replace damaged radii. |
| 7 | Marvin Miller Drive (Signalized) | FIB WB right turn radius damaged; EB right turn radius damaged. | Replace damaged radii. |
| 8 | Robinson Drive | Median noses damaged. | Replace damaged median noses. |
| 9 | Wharton Drive/ Mendel Drive (Signalized) | All radii and median noses damaged. | Replace damaged radii and median noses. |
| 10 | James Aldredge Boulevard | All radii and median noses damaged. | Replace damaged radii and median noses. |
| 11 | Bakers Ferry Road (Signalized) | EB right turn radius damaged; WB left turn median nose damaged. | Replace damaged radii and median noses. |
| 12 | Phillip Lee Drive | FIB WB right turn radius damaged. | Replace damaged radii. |
| 13 | Selig Drive | Both radii damaged incl. drainage structures; WB left turn median nose damaged. | Replace damaged radii/ drain. struct. and median noses. |
| 14 | Pauper Cemetery | Both radii and median noses damaged. | Replace damaged radii and median noses. |
| 15 | Great Southwest Parkway (Signalized) | All radii/ median noses either damaged or show wear. | Replace damaged radii and median noses. |
| 16 | Westgate Drive | Both median noses damaged incl. one drainage structure. | Replace damaged drain. struct. and median noses. |
| 17 | Bucknell Drive | All radii and median noses damaged. | Replace damaged radii and median noses. |
| 18 | Villanova Drive/Westpark Place | Both median noses damaged; FIB WB right turn radius damaged; Westpark PL has been upgraded recently. | Replace damaged radii and median noses. |
| 19 | Great Southwest Parkway/ Cascade Road (Signalized) * | All median noses damaged; Great SW right turn to WB FIB radius damaged. | Replace damaged radii and median noses. |

| | Location | Deficiency/Notes | Recommended Improvement |
|---|---|---|---|
| 20 | Bakers Ferry Road | Right turn to FIB WB radius damaged, S.W. need to be completed; Right turn to FIB EB radius damaged. | Replace damaged radii and median noses. Complete S.W. |
| 21 | Camp Creek Parkway (Signalized) | All radii damaged or showing wear. | Replace damaged radii. |
| 22 | Lakeview Court (Signalized) | FIB WB right turn and right turn to FIB WB damaged or showing wear. Intersection appears to be of newer construction | Replace damaged radii. |
| 23 | Boat Rock Rd (Signalized) | All radii and median noses are damaged. | Replace damaged radii and median noses. |
| 24 | Plummer Road | FIB WB right turn radius damaged; both median noses damaged. | Replace damaged radii and median noses. |
| 25 | Geiger (Company Name) | FIB WB right turn radius damaged; both median noses damaged. | Replace damaged radii and median noses. |
| 26 | Westlake Boulevard | Both median noses damaged. | Replace damaged median noses. |
| 27 | Tradewater Parkway/ Riverside Drive | All radii and median noses damaged. | Replace damaged radii and median noses. |
| 28 | Westgate Pkwy 1 | Both median noses damaged; both radii damaged or show wear. | Replace damaged radii and median noses. |
| 29 | Westgate Pkwy 2 | Both median noses damaged; both radii damaged or show wear. | Replace damaged radii and median noses. |
| 30 | Fastenal (Company Name) | EB median nose damaged. | Replace damaged median noses. |
| 31 | Bosch (Company Name) | EB median nose damaged. | Replace damaged median noses. |
| 32 | Eagle Vista Parkway/ Kendall Park Lane | All radii and median noses damaged. | Replace damaged radii and median noses. |
| 33 | Campbellton Rd (Signalized) | Both median noses damaged or showing wear. | Replace damaged radii and median noses. |

**Key**

EB = eastbound

S.W. = sidewalk

WB = westbound

### A.1.2.4. Key Freight Mobility Findings

The key findings for freight mobility include the following:

- Both FIB and Camp Creek Parkway are characterized by a high level of truck travel.
- Freight traffic in the study area is projected to increase substantially by 2040.
- Truck operations have damaged medians, sidewalks, and/or turn radii throughout the FIB corridor, as noted in Table A.1-3.
- The highest level of freight traffic and crash sites is along FIB near I-20.

### A.1.2.5. Freight Mobility Issues and Opportunities

Based on the key findings presented within, the following represent issues and opportunities with respect to freight mobility and travel.

**TABLE A.1-2.: FREIGHT MOBILITY ISSUES AND OPPORTUNITIES**

| Issue | Opportunity |
|---|---|
| Both FIB and Camp Creek Parkway are on the ARC Regional Thoroughfare Network and Regional Truck Routes | This designation renders improvements along these roadways eligible for ARC funds that provide an 80% match of federal funds. |
| The new federal transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21) emphasizes prioritizing improvements that stimulate economic development. | Improvements along FIB will stimulate economic development given its prominence as a major freight corridor in the region and, therefore, should be prioritized for federal funding. |
| The State Road and Tollway Authority (SRTA) provides grants to CIDs for capital improvements that improve mobility and stimulate economic development. | SRTA grants could be used to match federal funds provided by the ARC for improvements along FIB. |

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# Appendix A.2
## Land Use Assessment

### A.2.1. Study Area Overview

The Fulton Industrial CID Master Plan study area is focused on Fulton Industrial Boulevard (FIB) corridor located in southwest unincorporated Fulton County. The Chattahoochee River marks the western edge of the study area and the residential neighborhoods of Sandtown (unincorporated Fulton County) and Baker Hills, Bakers Ferry, Boulder Park, Midwest Cascade (City of Atlanta) are the eastern edge. Fulton County's airport, Fulton County Airport-Brown Field, north of the FIB/I-20 interchange, is the northern boundary, and Campbellton Road is the southern boundary.

### A.2.2. Existing Land Use

The current land use pattern in the study area is shown in **Figure A.2-1**; **Table A.2-1** presents a breakdown of the land uses in the study area by percentage.

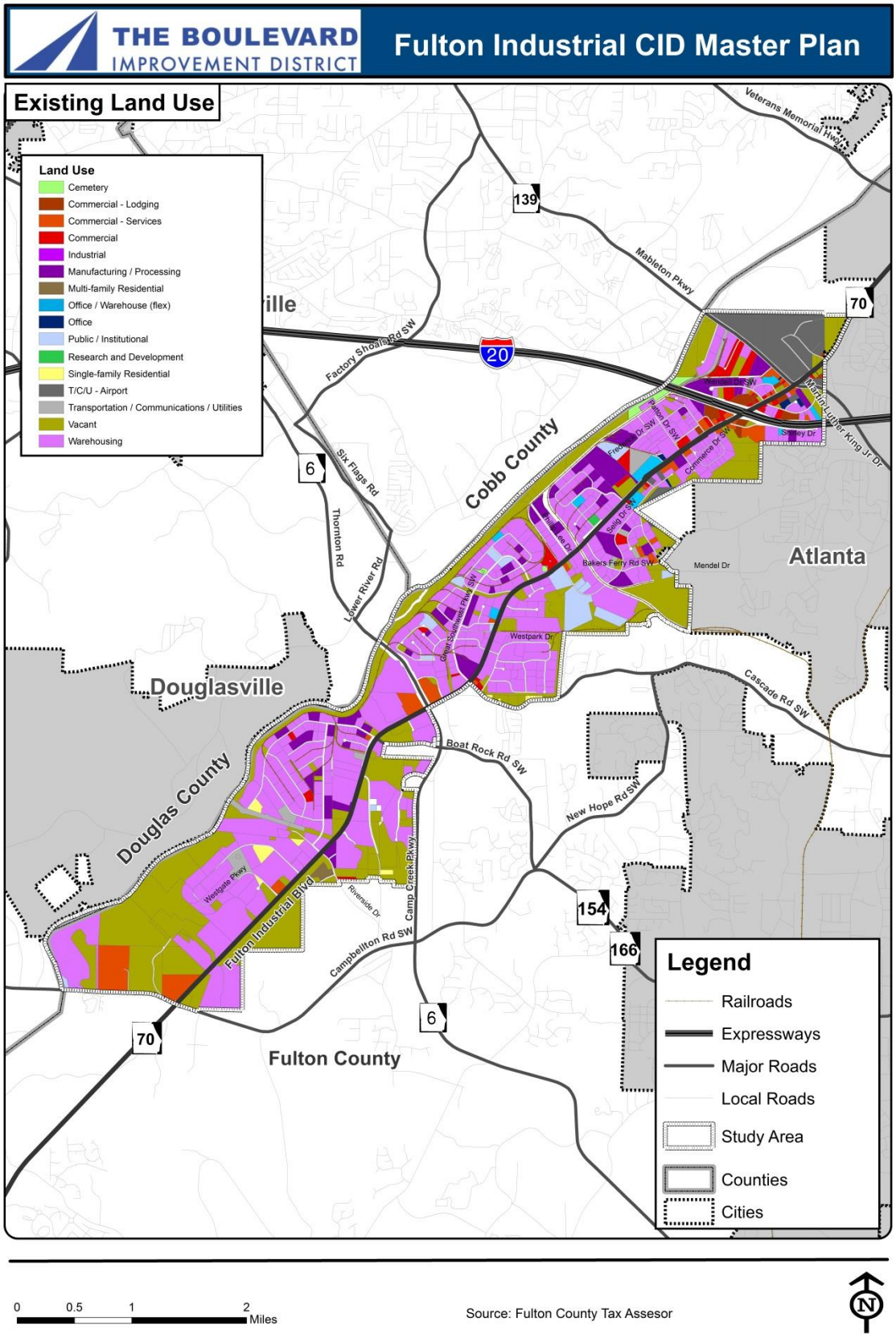
**FIGURE A.2-1: EXISTING LAND USE IN MASTER PLAN STUDY AREA**

| Land Use Category | % of Study Area |
|---|---|
| Industrial | 3.23% |
| Warehousing | 44.32% |
| Manufacturing / Processing | 6.08% |
| Research and Development | 0.07% |
| Transportation / Communications / Utilities | 1.58% |
| Airport | 3.65% |
| Office | 0.14% |
| Office / Warehouse (flex) | 0.77% |
| Commercial | 1.85% |
| Commercial - Services | 3.54% |
| Commercial - Lodging | 0.71% |
| Public / Institutional | 2.01% |
| Cemetery | 0.38% |
| Single-family Residential | 0.26% |
| Multi-family Residential | 0.18% |
| Vacant* | 31.22% |

*Source: Fulton County GIS*

**For existing land use purposes, vacant is a measure of land in the study area that is void of development; this includes the buffer area between the rail line and Chattahoochee River that is considered undevelopable.*

## FIGURE A.2-1: EXISTING LAND USE MAP



## Land Use Characterization

Industrial land uses dominate the study area, accounting for nearly 54% of the land in the study area. A breakdown of industrial uses shows that warehousing is by far the most prevalent use (44% of study area); manufacturing/processing is the second greatest industrial use but takes up a much smaller share of the study area (6%).

Among the limited commercial uses (6% of study area), most can be categorized as "services" (3.54%) including fast food restaurants, convenience stores and adult entertainment establishments. Commercial uses are primarily concentrated in "nodes" at the major intersections along the FIB corridor: FIB & I-20 and FIB & Camp Creek Parkway.

There is little office land use in the corridor (less than 0.14%), and only slightly more "flex" space (0.77%), a combination of office and warehouse uses. There are five parcels designated as office uses, these are located along Wendell Court north of the I-20 interchange and between Marvin Miller Drive and Selig Drive south of the interchange. There are eight parcels classified as "flex"; these are scattered in the northern portion of the study area along FIB, Interchange Drive, Wharton Drive, Wendell Drive, Tulane Drive, and Shirley Drive.

A number of public and institutional uses are scattered throughout the corridor (2.01% of study area). These include the City of Atlanta's Utoy Creek Water Reclamation Center, which lies along the eastern boundary of the study area on Selig Drive. Another institutional use is the American Legion Post 291 on Boulder Park Drive; the post is the oldest building in the study area, it was built in 1932 according to tax records. Fulton County government has a strong presence in the corridor; the County's Planning and Community Services Department and South Fulton Services Center are located on FIB just north of the "WestPark" industrial park development. Additionally, the Fulton County Housing Authority has offices on Wendell Drive, north of the 1-20 interchange, and Fulton County Fire Station #23 is located at 1300 New Cascade Road.

## Development Characterization

Development along the corridor began in the late 1950s, but most of the current structures were built in the 1970s. About a third of the corridor was developed during this decade, with 1973 being the busiest year with 64 structures built. Development began in proximity to the rail lines and then progressed outward towards the roadway. Construction activity in the study area tapered off dramatically in the 1990s with only 50 structures built in that decade, compared to 190 in the 1980s. Development slowed again in the 2000s; the study area added 25 structures between 2000 and 2005. Tax records do not show any parcels built after 2005; however, recent windshield surveys of the area show evidence of limited development activity, especially towards the southern end of the FIB corridor.

Generally, developments north of Camp Creek Parkway are pre-1990, and the largest concentration of 1990s construction is the Westgate industrial park, located at the southern end of FIB. Other areas of consolidated development are: Commerce Drive / Commerce Circle (1960s), the Great Southwest Parkway area (1970s), and the WestPark area (1980s).

Great Southwest Parkway

The temporal progression of development and transitions from manufacturing to distribution and rail to truck-centered freight movement are also evident in the size of the structures found in the northern and southern areas of the FIB corridor. The older structures at the northern end are typically smaller (<50,000 sq. ft.), with lower ceiling heights and fewer loading docks than those built in the 1980s and later. Among the larger structures in the study area most were built after 1990 and are used for warehousing for distribution purposes.

WestPark

Due to the shift away from manufacturing towards distribution and increasing space needs, there is a sense of decline in the older areas of the corridor, evident from a substantial amount of vacant and generally neglected structures. This has negative and positive effects on the future of the corridor. The poor appearance of these areas contributes to the negative perception of the area and may induce criminal activity (Broken Windows theory). On the positive side, the presence of small, inexpensive spaces can foster entrepreneurial startup businesses. Additionally, advances in railroad efficiency and the increasing importance of rail for moving international shipments across the county combined with the expansion of the Port of Savannah have rail poised for resurgence, especially in Georgia. These conditions could help advance consolidation and redevelopment in the older areas of the corridor that have access to rail lines. Investments in the area's rail infrastructure could also strengthen the likelihood of redevelopment.

As mentioned in the previous section, the limited commercial service uses in the study area are concentrated in nodes at FIB's major intersections. The largest node is surrounding the FIB/I-20 interchange area. The location along I-20 accounts for the presence of numerous lodging establishments in this node. The northwest corner of the interchange is dominated by the vacant Mosley Motel; however, there is a Subway sandwich shop operating out of a commercial extension of the motel structure. The Fulton Inn is also located in this quadrant of the interchange. Another restaurant, China Buffet, is located across Wendell Drive to the north along with another vacant lodging.

On the northeast corner there is Georgia Auto Pawn, the Love Shack, and Majestic Lodge and Extended Stay. The Fairview Inn at Six Flags Atlanta is located at the southeast corner of the intersection along with a McDonalds. Across Shirley Drive to the south there is a Red Roof Inn and pizza restaurant as well as a Chevron Station. A Waffle House is located south of the gas station. On the southwest corner of

the interchange commercial service uses include a BP gas station and the Grand Buffet restaurant. Following FIB southwards, there is a concentration of adult entertainment establishments in the vicinity of Frederick Drive.

The next node of commercial service uses is located between Cascade Road and Camp Creek Parkway; however most of the commercial development at this intersection is located on the eastern side of FIB south of Cascade Road, which lies outside the study area boundary. In this area, there is an urgent care facility, a U.S. post office, Waffle House, Jersey Mikes sandwich shop and a McDonald's. Within the study area, on the northeast corner of FIB and Cascade, there is a small commercial center with Bojangles, Dunkin Donuts, and Johnny's Pizza fast food restaurants. On the western side of FIB, there is a Bank of America and Quick Trip gas station at the intersection with Camp Creek Parkway/SR 6.

Although there is almost no residential land use within the study area, consistent with the rules governing Community Improvement Districts, the eastern edge of the study area buts a number of residential neighborhoods. These communities include Baker Hills, Bakers Ferry, Boulder Park, and Midwest Cascade (City of Atlanta) and Sandtown (unincorporated Fulton County). In many areas there are vacant properties or less intensive public institutional uses buffering these residential communities from the industrial uses along FIB; however, there are a few areas that lack buffering. These include the Baker Hills community to the southeast of the I-20 interchange area that backs up to industrial uses along Shirley Drive, and the residential neighborhood on Carlo Woods Drive, off of Cascade Road, that backs up to industrial uses on Gwaltney Drive (WestPark).

The Chattahoochee River and the vacant buffer area between the river and rail line provide a separation from industrial use on the western side of the study area. The area surrounding the Chattahoochee River in the FIB study area is also protected by the 1973 Metropolitan River Protection Act (MRPA). The MRPA established a 2000-foot corridor along the banks of the river and its impoundments between Buford Dam and Peachtree Creek. The Act was amended in 1998 to include the downstream limits of the river and its impoundments in Fulton and Douglas Counties.

The developed areas of the FIB corridor are not subject to the land disturbance and impervious surface limits within 2,000 feet of the river. If redeveloped, the disturbed area and impervious surface cover on these properties would be limited what is there currently. However, the other protection standards of the MRPA apply, these include: an undisturbed natural buffer for 50 feet along the river's banks and 35 feet along flowing stream channels; a 150-foot buffer zone for impervious surfaces and structures, and a 35-foot height limit on structures within the river's 500-year floodplain. Within the FIB Master Plan study area the 500-year floodplain is typically only a few feet beyond the 100-year floodplain due to the rise in elevation to the rail line.

## Vacant Parcels

Almost a third of the study area registers as "vacant" in land use surveys. It is important to note that this includes undevelopable area such as the buffer along the Chattahoochee River and railroad right of way areas. When these areas are subtracted from the total "vacant" land, about 20% of the study remains as vacant and developable, see **Figure A.2-2**. The vacant parcels in the study are range in size from less than an acre to 130 acres, with the average size being eight and a half acres. Most of the significant concentrations of vacant are at the southern end of the study area and most have industrial zoning classifications. Vacant parcels that back up to the river at the southern end of the corridor will have their developable area somewhat reduced due to the undisturbed buffer required along the river.

There is a 316 parcel on the eastern side of the FIB frontage between Riverside Drive and Campbellton Road that is currently in the process of being developed. The area is zoned mixed-use and is part of Riverside, a 456 acre mixed-use project approved by Fulton County in 2006. Two hundred and eighty of the planned 350 apartments in the Riverside project were constructed. In July 2012 312 acres of the original Riverside development area were rezoned and approved for a mix of 30,000 sq. ft. of retail, 8,000 sq. ft. of office, 140 townhouses and 780 single family detached dwelling units. It is anticipated that the retail and office uses will be constructed in the area fronting FIB; however, the development timeline is undetermined.

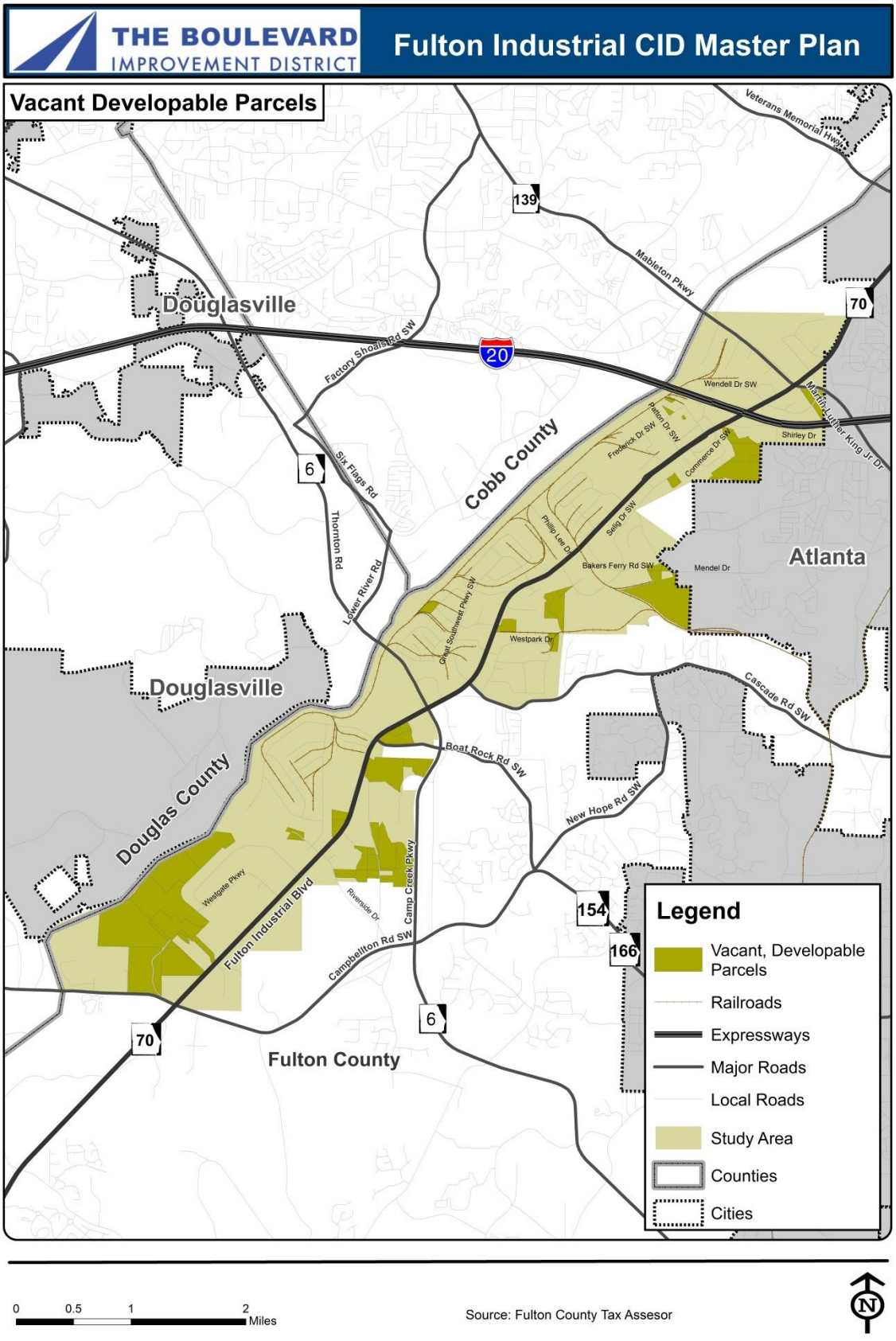
## Incompatible Uses

Due to the consistency of industrial zoning throughout the study area, the lack of residential uses within the study area, and generally substantial buffering of the study area from adjacent neighborhoods there are few issues of incompatible land uses within the Master Plan study area. However, a notable exception is the cluster of adult oriented businesses south of the I-20 interchange. These businesses contribute to area's image as a magnet for prostitution and drug related crimes. Additionally, there is evidence of increased traffic accidents in the vicinity of these businesses.

While the consistency of land uses within the FIB corridor limits direct incompatibilities, there has been increased concern in Fulton County regarding the overall adverse impacts of various land uses on natural resources, the environment and citizens. This concern prompted a recent amendment to the Fulton County Zoning Resolution. Article 4.18 Environmentally Adverse Use Distance Separation Requirements from Residentially Developed Property was adopted by the Fulton County Commission on July 17, 2013.

Environmentally adverse uses include: discharge of chemicals listed in applicable U.S. Environmental Protection Agency (EPA) documents, uses requiring EPA or State of Georgia Environmental Protection Division (EPD) permits, and various mainly industrial uses listed in Section 4.18.3 of the amendment. The required minimum distance separation between the use and existing residentially developed property vary from 300 feet to a half mile. The amendment applies to the establishment of new adverse uses in Fulton County and provides a standard process (an Environmental Justice Review or EJR) to determine the environmental adversity and appropriate distance separations of future businesses that may not be listed in the amendment.

**FIGURE A.2-2: VACANT DEVELOPABLE PARCELS MAP**



Although this amendment will not affect current businesses, it could impact the potential for future industrial development and redevelopment in the Master Plan study area. The uses covered by the amendment are widely varied and include things like chemical storage, blending and mixing, joinery and wood working premises, metal coating, fabrication and finishing and pharmaceutical production.

## Redevelopment Opportunities

The greatest need for redevelopment is in the vicinity of the I-20 interchange. This is both the corridor's main commercial node, and its primary gateway. Today the area is characterized by vacant buildings, low-end lodgings, fast food restaurants and adult entertainment establishments. A prime opportunity for redevelopment in this area is parcel on the northwest corner containing the vacant Mosley Motel. The parcel is well situated to become an inviting gateway to the FIB corridor, at its size is large enough to allow for a statement development. The importance of redeveloping this property to the overall revitalization of the corridor was also highlighted in a redevelopment study conducted by a student group from UGA's Terry College of Business. As that study points out, this is the first view of the corridor for those exiting westbound I-20.

In addition to the motel property, there is a grouping of three vacant parcels totaling 75 acres on southeast corner of the interchange. The drawback of these properties is their currently, limited frontage on FIB. However, consolidating these into a single large tract would create an opportunity for master planned development. This type of "catalyst project" could spur the redevelopment or reinvestment in the interchange area's smaller parcels. It may also be appropriate to incentivize parcel consolidation to help entice redevelopment in this area.

Moving south along the corridor opportunities for small scale industrial revitalization, reuse, and redevelopment are prevalent in the older industrial parks located between I-20 and Camp Creek Parkway. However, the most likely site for new investment in the study area is at the southern end of the FIB corridor where a number of large parcels remain vacant, these were discussed previously in the vacant parcel section.

# A.2.3. Zoning

## Districts

There are fifteen different zoning classifications applicable to the parcels within the study area. Two of these classifications, A-1 and SUB-A, are inactive districts for which no new zoning applications will be accepted. The various zoning classification in the study area are depicted in **Table A.2-2. Figure A.2-3** provides a breakdown of the zoning classifications by percentage of the study area.

**TABLE A.2-2: STUDY AREA ZONING**

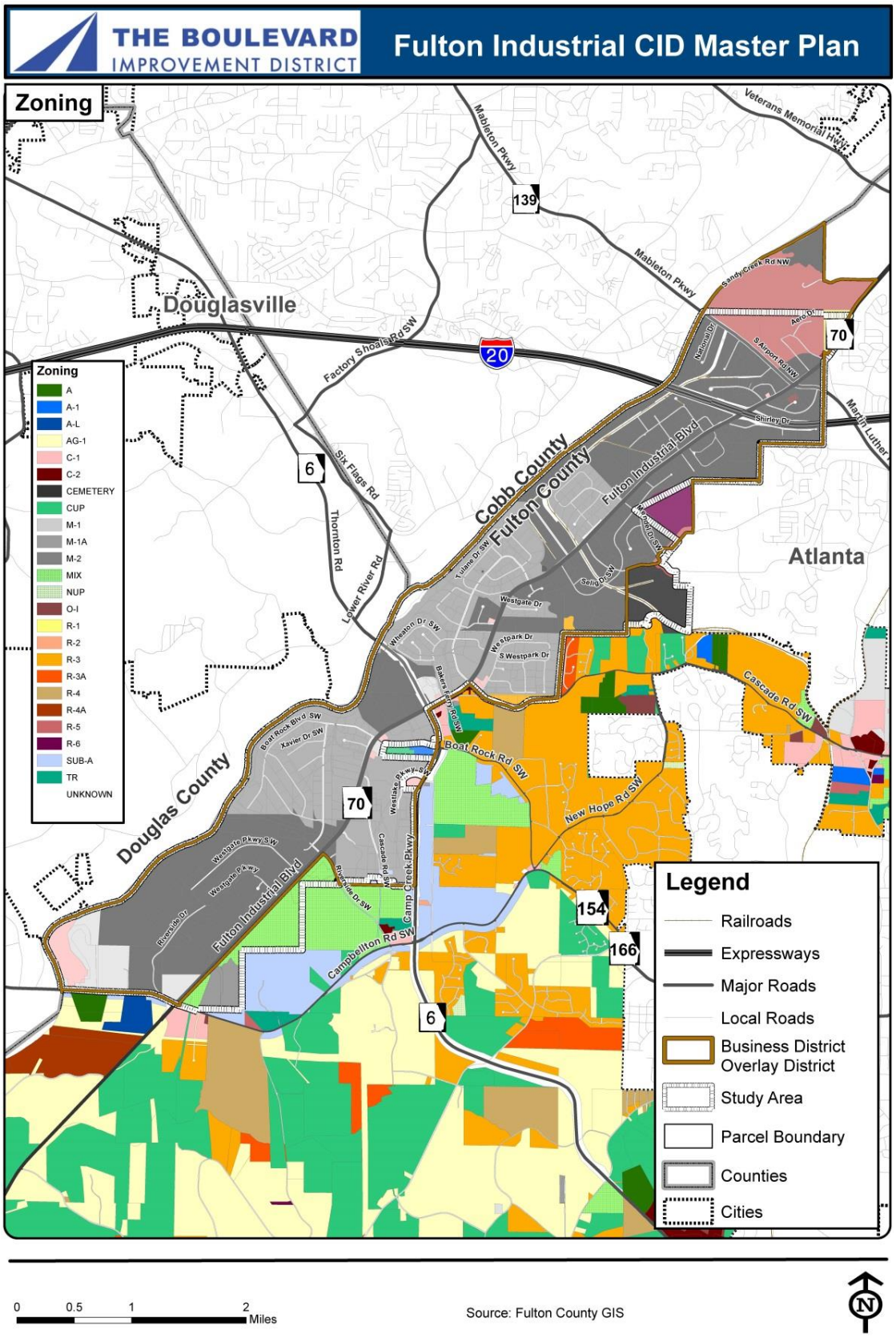
| Zoning Classification | Description | % of Study Area |
|---|---|---|
| A-1 | Apartment Dwelling District - inactive | 0.00% |
| C-1 | Community Business District | 1.37% |
| C-2 | Commercial District | 0.02% |
| CEMETERY | cemetery | 0.03% |
| M-1 | Light Industrial District | 3.60% |
| M-1A | Industrial Park District | 34.33% |
| M-2 | Heavy Industrial District | 50.37% |
| MIX | Mixed Use District | 5.56% |
| O-I | Office Institutional District | 0.05% |
| R-1 | Single Family Dwelling District - 2 acre min. | 0.47% |
| R-3 | Single Family Dwelling District - 18,000 sq. ft. min. | 0.63% |
| R-3A | Single Family Dwelling District - 18,000 sq. ft. min. | 0.00% |
| R-5 | Single Family Dwelling District - 7,500 sq. ft. min. | 3.38% |
| R-6 | Two Family Dwelling District | 0.13% |
| SUB-A | Suburban Single Family Dwelling District - inactive | 0.07% |

*Sources: Fulton County GIS and Fulton County Zoning Ordinance*

Industrial zoning classifications (M-1, M-1A, and M-2) apply to the majority of the study area (88.29%), with heavy industrial zoning being the most prevalent zoning found in the study area (50.37%). Parcels that are zoned heavy industrial include uses/businesses such as a large cold storage facility on Selig Drive, a specialized plastics business on Philip Lee Drive, and warehousing on Camp Creek Road. Nearly thirty-five percent is classified as Industrial Park District (M1-A) including such areas as the Westgate and Atlanta Gateway industrial parks.

Mixed use zoning (MXD) applies to 5.56% of the study area. The area zoned for mixed use is the large, mostly undeveloped swath on the eastern side of FIB south of Riverside Drive. The developed portion of this area is limited to a residential development (apartments and single family) at the corner of FIB and Riverside Drive. The undeveloped parcel at northeast corner of the intersection of FIB and Campbellton Road is also zoned MXD.

**FIGURE A.2-3: EXISTING ZONING MAP**



Commercial classifications (C-1 and C-2) account less than two percent of the study area; however, most of the commercial businesses in the study area are located on industrially zoned property. Less than one percent of the area is zoned for office or institutional uses. Less than five percent (4.68%) of the area is zoned for residential uses. Most of the parcels with a residential zoning classification are vacant or are used for other purposes. An example of this is Fulton County Airport-Brown Field, which is zoned R-5, a single-family residential classification.

## Fulton Industrial Business District Overly District

In addition to the "base" zoning classifications outlined above, all land and structures within the study area, excepting single family detached dwelling units, are also regulated by the Fulton Industrial Business District Overlay District (see boundaries in **Figure A.2-3**). The overlay was adopted in 2012 to "protect and enhance local aesthetic and functional qualities, and to stimulate business and promote economic development." The overlay provides standards for screening refuse areas and receptacles, connecting sidewalks to signalized crosswalks and bus stops, and provisions for the architectural treatment of new buildings.

The overlay includes an additional layer of development standards for properties with frontage along FIB that are designated as industrial on the 2030 Future Development Map (**see Figure A.2-4**) – generally all areas of the corridor outside of the major intersections of I-20, Camp Creek Parkway and Campbellton Road. These additional standards include:

- 15 foot wide landscape strip along all FIB frontages.
- Screening of outside storage when visible from FIB.
- Material specification for exterior walls visible from FIB (Meet requirements of M1-A Industrial Park District).
- Free standing signs constructed of brick, granite, stone, marble or other material used in the primary structure and in the same color as the primary structure. For non-confirming structures, the signage shall comply with materials proscribed for the M1-A District.
- Sidewalks must be connected to signalized crosswalks and bus stops where applicable; however, there does not appear to be proscribed with for sidewalks in the underlying zoning, nor do they appear to be required.

The overlay also includes additional standards for properties designated as industrial marketplace on the 2030 Future Development Map. These standards include:

- A prohibition on accessory site features in the front yard.
- Accessory site features must be screened from the view of any street and any area of residential zoning or use.
- Material specifications for exterior walls of industrially zoned buildings visible from the public right of way.
- Material specification for commercially zoned or used buildings.

- Prohibition of burglar bars, steel gates, and steel roll down curtains except at the rear of a structure.
- Prohibition of wood privacy fencing.

### Issues/Opportunities presented by Zoning

#### Issues

- The permissive use structure of the industrial zoning classifications has allowed some undesirable land uses (adult entertainment) to infiltrate the study area.
- Presence of mixed use zoning on parcels at the southern end of the corridor, adjacent to industrially zoned (vacant) land could create incompatible land uses and curtail the development of the industrial property due to setback requirements.
- Aside from code enforcement, there are limited tools for bringing substandard structures up to current zoning standards.
- Investigate the effect of building height restrictions associated with Fulton County Airport-Brown Field on the redevelopment of the I-20 interchange area.

#### Opportunities

- The Fulton Industrial Business District Overlay addresses many of the issues found on the corridor, building and sign materials, sidewalks, landscaping, screening; new development must comply.

## A.2.4. Comprehensive Plan

The County's Community Agenda is the Comprehensive Plan's policy component intended to guide future growth and development decisions.

### Character Areas

There are four Character Areas included in the Future Development Map of the Fulton County 2030 Comprehensive Plan that apply to the Master Plan study area. The purpose of the Character Area designation is to guide the development of large geographic areas that share a common purpose. To do this, there are compatible land uses and zoning designations listed for each Character Area. See **Figure A.1-4** for the Character Area designations along FIB, which are also discussed below.

#### Industrial Zone

- This applies to the majority of the FIB Master Plan study area, except as noted below.
- Compatible Zoning Classifications: M-1, M-1A, M-2.
- Compatible Land Uses: Industrial, Open space, Public, Semi-Public & Institutional.

### Industrial Marketplace

- This is found on the quadrants of the intersections of FIB/I-20, FIB/Camp Creek Parkway and FIB/Campbellton Rd (except as noted below).
- Compatible Zoning Classifications: C-1, C-2, O-I, M-1, M-1A, M-2.
- Compatible Land Uses: Retail Industrial, Commercial, Business Park, Public, Semi-Public & Institutional, Industrial, Open Space.

### Community Mixed Use

- This is found on the FIB frontage between Riverside Drive and Campbellton Road south of Camp Creek Parkway.
- Compatible Land Uses: Community Live-Work, Public, Semi-Public & Institutional, and Open Space.

### Regional Mixed Use

- This is found on the northeast quadrants of the FIB/Camp Creek Parkway (outside the MP study area) and FIB/Campbellton Road intersection (within the study area). Compatible Zoning Classifications: MIX; C-1; C-2, O-I and SH.
- Compatible Land Uses: Regional Live-Work, Public, Semi-Public & Institutional, and Open Space.

### Suburban Neighborhood

- This is found on the eastern edge of the study area in the vicinity of Bakers Ferry Road, Boulder Park Drive and the rail line. Along this boundary, the study area adjoins the Bakers Ferry neighborhood in the City of Atlanta. However, the portion of the study area that is designated as Suburban Neighborhood is currently vacant and zoned M-2 (heavy industrial).
- Compatible Zoning Classifications: R-3, R-3A, R-4*, R-4A, R-5*, R-5A*, TR*, CUP, NUP, SH *higher residential densities appropriate in Suburban II area only.
- Compatible Land Uses: Residential 2 to 3 units/acre (Suburban I), Residential 3 to 5 units/acre (Suburban II), Open Space, Public, Semi-Public & Institutional.

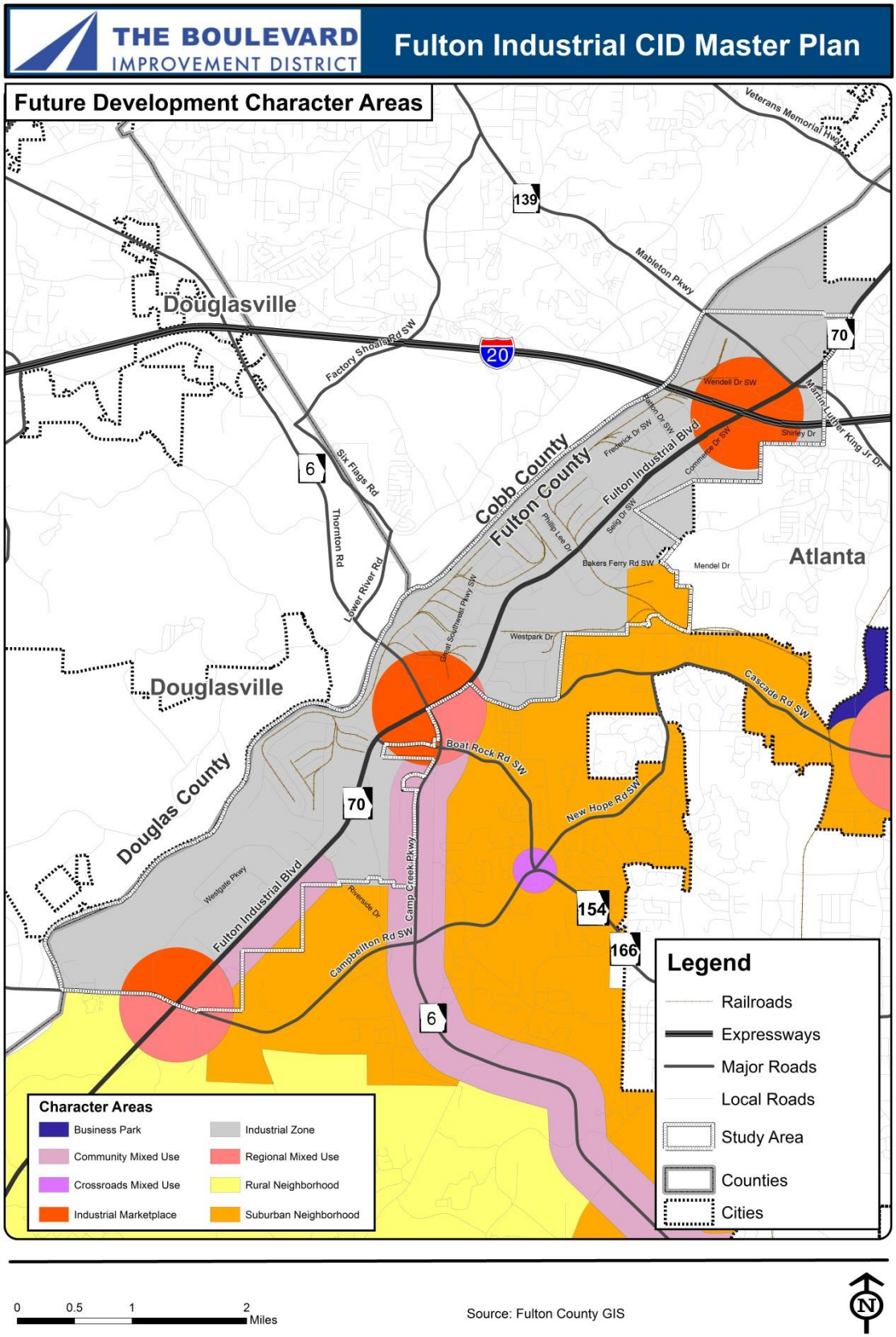
## Future Land Use

As mentioned above, the Fulton County 2030 Comprehensive Plan also delineates the appropriate future land uses for each Character Area shown on the Future Development Map. The land uses that are appropriate within the Character Areas found in the FIB Master Plan study area are outlined below.

***Industrial*** – allows for processing, refining, manufacturing, warehousing (including mini-warehouses) distribution, truck and rail terminals, industrial parks and related support services.

***Retail Industrial*** – allows for commercial/retail/office use that provide services to industrial areas; height should be per zoning or use permit with no limitation on commercial/office density or building footprint.

**FIGURE A.2-4. FUTURE DEVELOPMENT CHARACTER AREAS**



***Commercial*** – allow for retail, services and offices. Retail uses may be part of a single-building or shopping center and office sues may be single office buildings or office parks. High intensity office is reserved for office uses five stories or over in height.

***Business Park*** – allows for two or more business uses, primarily offices along with warehouses for storage and distribution. Limited assembly can be included. Access to rail and truck routes (such as provided in the FIB study area) can be important to business park sites.

***Public, Semi-Public & Institutional*** – allows for siting of community facilities such as fire and police stations, government centers, churches, hospitals, etc., and land uses related to transportation, communications and utilities such as MARTA facilities, water storage tanks, and landfills.

***Live –Work*** - The live-work designations are intended to allow an appropriate and balanced mix of uses to create a live-work environment at a scale and character that is compatible with the surrounding community. These areas are meant to be developed in a compact, pedestrian-oriented manner with a mix of uses incorporating open space. Community Live-Work is intended along corridors and in nodes to serve a group of adjacent neighborhoods, while Regional Live-Work is ideally located along major transportation corridors.

**TABLE A.2-3: LIVE-WORK LAND USE CATEGORIES**

| | Community Live-Work | Regional Live - Work |
|---|---|---|
| Residential Density | Up to 9 units/acre | 9+ units/acre |
| Commercial / Office Density | 15,000 sq. ft. / acre | No limit |
| Limit per Tenant Space / Use | 50,000 sq. ft. | 125, 000 sq. ft. |
| Height Limit | 4 stories | Per zoning / permit |
| Community Gathering Space* | 10% | 15% |

*Source: 2030 Fulton County Comprehensive Plan*
**% of total project area*

***Open Space*** – is a land use designation for land that is mainly undeveloped, contains some recreation uses and/or some natural resources. It does not include buffers and landscape strips. Open Space may be in the form of private recreation facilities, such a golf course, and park; recreation and conservation areas such as facilities owned by Fulton County and the NPS; water bodies, and the 100 year flood plain, as determined by FEMA.

## Issues and Opportunities for FIB Presented by 2030 Future Development Map

### Issues

- The Regional Mixed Use, Community Mixed Use and Suburban Neighborhood Residential character are designations found in portions of the FIB study area are inappropriate and may have a detrimental effect to industrial (re)development if residential development begins to erode the industrial district.

### Opportunities

- The Industrial Marketplace character area designation will help to focus commercial development in the corridor and will allow for the incorporation of uses to support the employees working in the study area.
- By allowing for open space area in the industrial district, there is the potential to develop a trail network along the Chattahoochee River that could link to other regional trail networks and provide a recreational amenity for employees of study area businesses.

## Relevant Goals/Policies/Strategies of the 2030 Comprehensive Plan

### For Neighborhood Districts:

- Promote existing residential uses from negative impacts of industrial uses
    - Evaluate Quarry Impact Zone to protect residential uses. The M-2 zoning classification, found in the study area, allows for extraction land uses such as quarries.
- Protect the night sky from the pollution of excess outdoor light. The lighting required for security of industrial sites, may exceed levels acceptable under Night Sky ordinance.
- Require transportation infrastructure to be sensitive to the context of its surroundings
- Promote new live-work centers for new residential development opportunities. Portions of the study area are classified as appropriate for live-work; the incorporation of residences into the industrial corridor may impose added buffer requirements on industrial properties, which could stymie development.
- Promote an interconnected transportation system by requiring inter-parcel access and multiple access points as property is developed and by limiting the construction of cul-de-sacs. Inter parcel access in neighborhoods adjoining the industrial areas of FIB may lead to cut through truck traffic that would likely be unacceptable to neighborhoods.

### For Mixed-Use Districts:

- Target reinvestment to vacant tor underutilized sites and buildings / Develop and maintain an inventory of vacant and/or unoccupied properties to identify sites that are suitable for development and redevelopment. *Areas within the Fulton Industrial Master Plan study area are vacant and designated for mixed use; they could be included in the inventory.*
- Encourage new commercial centers to develop near intersections to prevent unattractive sprawl. *Part of the MP study area is designated for mixed use; attention to how increased development will impact freight mobility will be needed.*

### Business Districts:

- Support implementation of Fulton Industrial Boulevard Redevelopment Framework. (Adopted April 7, 2010).
- Promote and protect industrial uses by limiting incompatible uses, such as residential, in areas designated as Industrial Zone and Business Park on the Future Development Map
- Promote the revitalization of the Fulton Industrial Boulevard Industrial District.
    - Provide incentives for the redevelopment of underutilized commercial, office and industrial areas.

  - Identify the infrastructure needs of businesses and incorporate them into a long-term infrastructure plan.
  - Adopt an industrial preservation policy.
- Protect industrial base while simultaneously allowing for necessary commercial services to support industrial workers.
- Provide appropriate transition between commercial uses and heavy industrial uses within industrial areas.
- Direct business to areas throughout the county that are targeted for economic growth.

### For All Character Areas:

- Increase recreational access to the Chattahoochee River including supporting the development of a liner greenway along the river.
  - Partner with private developers and land conservation agencies to help preserve greenspace.
  - Review implementation of TrailNet greenway master plan.
- Promote continued coordination of land use planning, zoning and transportation planning with local governments, districts and authorities.

## Short Term Work Program Items that May Impact Fulton Industrial Boulevard*

### 2011-2015

- Require inter-parcel access.
- Develop/maintain inventory of vacant / unoccupied properties.

### 2012-13

- Evaluate Quarry Impact Zone to protect Residential Districts.
- Evaluate implementation of Night Sky ordinance.
- Incentives for redevelopment of underutilized areas identified in the Future Development Map.
- Identify infrastructure needs of businesses and incorporate into long-term infrastructure plan.

### 2011-2012

- Develop Fulton Industrial Boulevard marketing materials.

**Only those items know to be outstanding/not underway are included.*

# A.2.5. Previous Studies and Initiatives

## Fulton Industrial Boulevard Redevelopment Framework

This Redevelopment Plan, which was adopted by the Fulton County Board of Commissioners in August 2010, serves as the redevelopment plan for the Fulton Industrial Boulevard. Under Georgia state law, Urban Redevelopment Areas can be eligible for certain funding to support community improvement projects and the designation gives local jurisdictions additional tools for community redevelopment. Developed with community input from a range of stakeholders, including area residents, business owners, property owners, elected officials and others, the plan provides a working policy framework to guide redevelopment activity along the Corridor. Study recommendations that relate to land use/development include:

- Identify incentives that would recognize and meet the needs of developers bringing private investment to the park, ensuring that public benefits derived from the incentives outweigh the investment of public resources.
- Promote opportunities for exciting mixed use, retail, office and manufacturing facilities.
    - Incorporate specialty retail elements for workers and neighboring residents which could draw consumers to the district.
- Encourage the protection of the beauty and function of the natural environment to maintain a community where workers want to work.
- Sidewalks – 10ft along FIB right-of-way/5 ft. along other public rights-of-way.
    - Clearly identified crosswalks.
    - Pedestrian path on County-owned greenspace along the Chattahoochee River.
        - Pedestrian connections utilizing abandoned rail spurs.
- Enhanced landscape strips along public streets
    - Median landscaping at FIB and Martin Luther King, Jr. Drive.
    - Lighting – all streets, pedestrian lighting on FIB, on path on County owned greenspace by river.
- Incorporate Crime Prevention Through Environmental Design (CPTED) principles in overlay.
- Residential as accessory to retail development in retail-industrial (industrial marketplace) areas.
- Create Gateway at I-20 Interchange, and at Fulton County line near Martin Luther King, Jr. Drive and Chattahoochee River.
- Provide location for appropriate retail uses (Martin Luther King, Jr. Drive and Patton Drive).
    - Transitions between commercial and heavy industrial.

## ULI TAP for the Redevelopment of Properties Adjacent to FIB and the I-20 Interchange

This report is the result of a multi-day panel analysis of the FIB Corridor and discussion of recommendation for next steps to improve the economic competitiveness of the area. The report specifically focuses on the redevelopment of the FIB / I-20 interchange area as a key to driving positive change and creating new community amenities. Recommendations made in the report are divided into five topic areas: branding and corridor identity, safety and security, transportation and streetscape improvements, real estate and redevelopment, and economic development. Report recommendations related to land use and development regulations include:

- Developing sign standards to create a unified image for the corridor.
- Removing concertina fencing.
- Develop a trail system along the Chattahoochee River.
- Explore the use of zoning and development regulations to discourage undesirable uses along the corridor.
- Integrate greenspace into existing and new development.
- Increase lot coverage requirements to improve land use efficiency.
- Attract services such as retail, medical and restaurants to the corridor.

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# APPENDIX A.3
# URBAN DESIGN ASSESSMENT

## INTRODUCTION

The Urban Design Assessment (UDA) is organized into three categories: Space, Activity, and Path. These categories were designed to distill, into key findings, the information gathered from the initial analysis and windshield survey of urban design characteristics within the Master Plan study area, as described in Chapter 1 of the main report. The UDA identifies preliminary issues and opportunities associated with Space, Activity, Path. The outline below shows information that was analyzed within each of the three categories.

### Space

- Figure Ground
- Streetscape
- Wayfinding
- Other

### Activity

- Land Use
- Industrial Districts
- Redevelopment Districts
- Greenways District
- Parks
- Other

### Path

- Pedestrian Connections
- Vehicular Connections
- Bike Paths
- Sidewalks
- Bus Routes
- Other

# SPACE ANALYSIS

The space analysis considers items in the outlined below:

- Figure Ground
- Wayfinding
- Key Intersections
- Photo Inventory
- Landmarks/Gateways
- Character Districts

## KEY FINDINGS

- One signature gateway celebration
- Three types of character districts: industrial, commercial and airport
- No sense of place/branding throughout district
- Two types of landmarks that help characterize the district: structures and streets

## BUILDINGS + SETBACKS

KEY INTERSECTION AND GATEWAY AT GREAT SOUTHWEST PKWY AND FIB

FULTON COUNTY AIRPORT-BROWN FIELD

Figure **A.3-1** shows a typical relationship of setbacks and buildings within the study area. The buildings are typically large (80-100,000 SF), appropriate for an industrial district. Setbacks are large (100+ ft.) to accommodate trucking standards, which create wide and stately entrances.

## GATEWAYS/ LANDMARKS

As shown in **Figure A.3-2,** large entrances can be treated as opportunities for design elements and gateways for development that spurs off the main arterial. Existing landmarks within the district include the Fulton County Airport and the signature gateway at Great Southwest Pkwy and Fulton Industrial Boulevard (FIB). There are currently no gateway/landscape enhancements at district entrances, which would help provide a sense of place.

## CHARACTER DISTRICTS

As shown in **Figure A.3-2,** there are three main character districts within the study area: the **industrial, commercial, and airport character** districts.

- **The industrial character district** largely constitutes the study area, which encompasses mostly industrial and warehousing components. This area has large truck-oriented setbacks to accommodate the associated traffic and large turning radius of the trucks along with large warehouse/industrial buildings.
- **The commercial character district,** to the north, is vehicular focused with shopping strip-center and fast food restaurants. This area serves mostly highway passer-by traffic.
- **The airport character district**, to the north end of the study area, encompasses the Fulton County Airport-Brown Field.

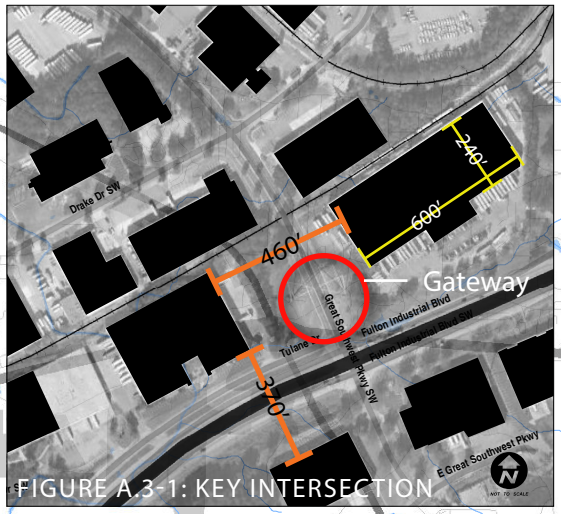



FIGURE A.3-1: KEY INTERSECTION

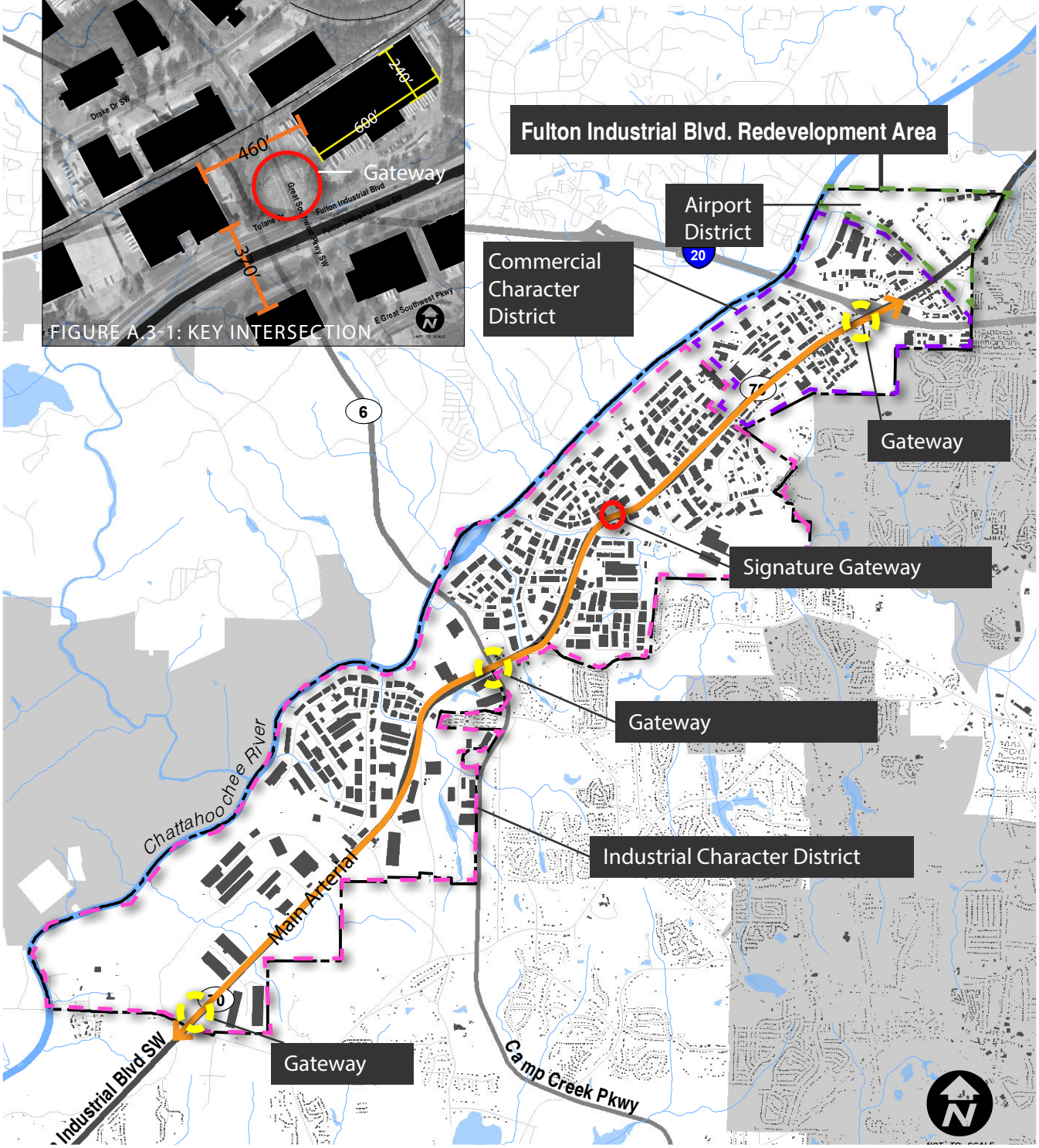



FIGURE A.3-2: DISTRICT FIGURE GROUND

## WAYFINDING + BRANDING

Throughout the study area, there are a number of isolated developments that spur off of the FIB. While most developments are industrial, some are commercial, which are vehicularly oriented towards fast food and other customer business. As shown in the pictures to the right and below, there is no district-wide wayfinding and signage strategy.

It was found that individual industrial developments were more likely to have a development plan, but that there was not an overall design strategy for the corridor.

THE BOULEVARD
IMPROVEMENT DISTRICT








## BUILDING STOCK

Throughout the study area, the existing building stock is mainly industrial warehousing with a strip mall shopping center acting as a node located at the I-20 exit. Most of the building stock is more than 30 years old and functionally, as well as aesthetically, outdated. In the commercial sections of the site, there is a significant number of buildings that are dilapidated and non-functional, as shown in the pictures below.

Due to their industrial nature, many buildings have large setbacks which are meant to accommodate adequate buffers and circulation for large trucks. This creates expansive developments, as shown in **Figure A.3-3**. There is a significant amount of vacant warehousing/industrial buildings within the district. This building stock ranges in size and capacity for potential future users. Due to the age of the building and structure, many of the lots appear to have trouble accepting current trucking standard dimensions with low maneuverability space and parking.

Overall, buildings within the district do not have an overarching design theme that establishes a sense of place. Zoning and land use regulations that are part of the Overlay District have the potential to restrict future design and development opportunities.

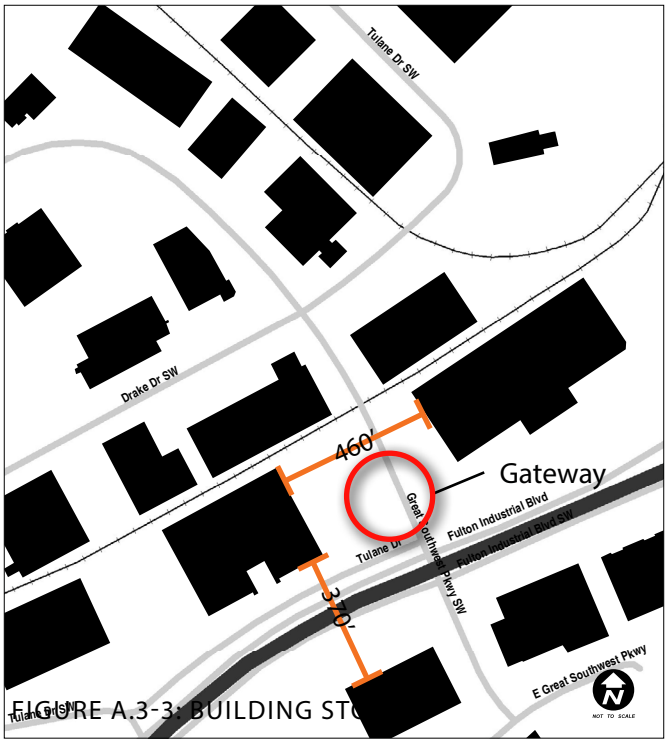



FIGURE A.3-3: BUILDING STO


# ACTIVITY ANALYSIS

As part of the baseline UDA, the activity analysis analyzed the items below. *Please also see the Land Use Assessment (Appendix A.2) for additional land use discussion.*

- Land Use
- Industrial Overlay Districts
- Greenways
- Parks

## KEY FINDINGS

- Mainly industrial in nature with commercial nodes: largely analogous land uses.
- Industrial/warehouse structures lack cohesive district-wide design elements.
- Isolated district—defined edges created by Chattahoochee River and forested "green belt."
- Aging building stock.

There are many high pedestrian/vehicular conflict areas, lack of cross walks throughout, no connectivity to the Chattahoochee River, industrial land uses do not cater to pedestrian activity, and the district is largely isolated by design.

## LAND USE

The Appendix A.2, Land Use Assessment, provides detailed analysis of the current land uses within the study area. Current land use is a primer to understanding the functional relationships and inner-workings of a site as big as the FIB district. The district is mainly industrial with complimentary land uses throughout. There are commercial nodes, where strip shopping centers and fast food restaurants attract vehicular traffic. There is capacity for growth within the district.

## GREENWAYS + PARKS

An important key finding of the study area, is the existence of a forested green belt and alignment with the Chattahoochee River. These natural amenities have been ignored throughout the district, which could potentially be turned into an asset. As shown in **Figure A.3-4**, there is a significant portion of the district boundary dedicated to greenways, parks, and forest. This is likely to preserve a buffer from industrial land use to the outside surrounding uses.

## OTHER DISTRICTS

**Figure A.3-5** illustrates an industrial overlay district which is in place within the FIB district.

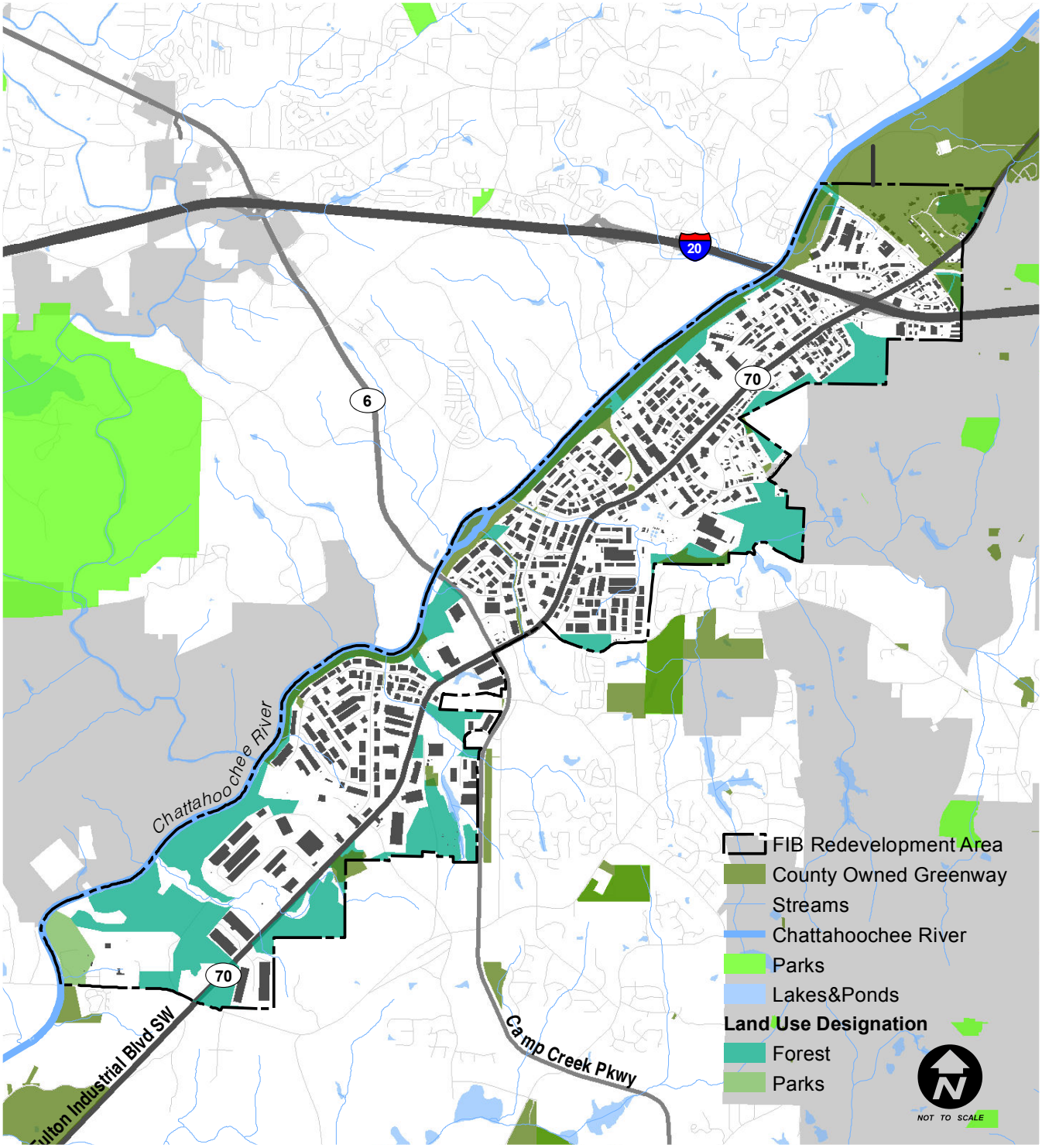



FIGURE A.3-4: PARKS AND GREENWAYS

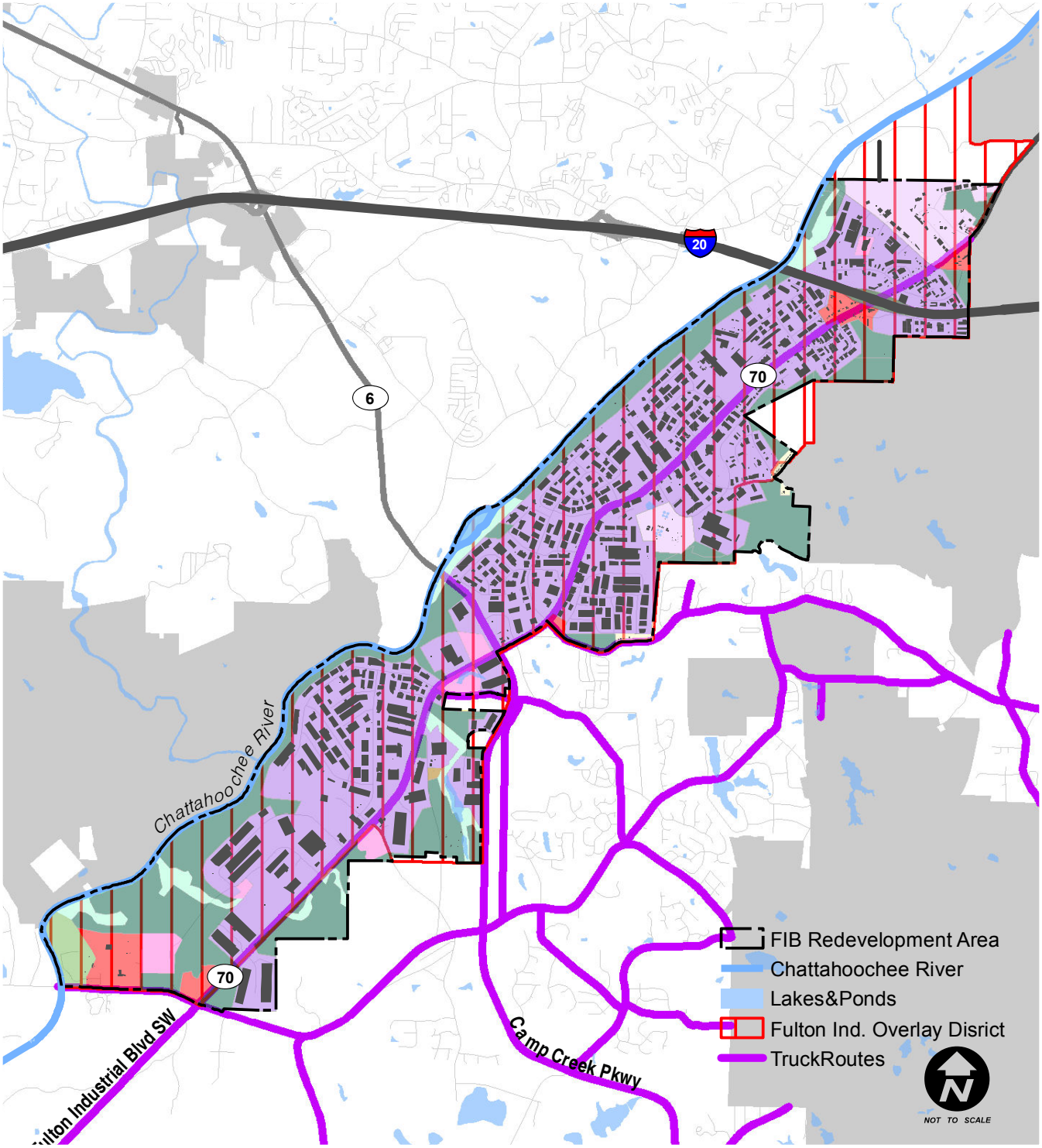



FIGURE A.3-5: FIB INDUSTRIAL DISTRICT OVERLAY + LAND USE

# PATH ANALYSIS

Path analysis considers the items below. *Please also see the Transportation Assessment (Appendix A.1) for detailed analysis of existing multimodal and freight mobility conditions.*

- Pedestrian + Vehicular Connections
- Streetscape
- Bike Path, Sidewalks, Bus Routes
- Other Networks

## KEY FINDINGS

- Disjointed networks (bike + pedestrian).
- Lack of pedestrian scaled design.
- Lack of secondary and tertiary road connections.
- Street networks are very wide to accommodate trucks and cars with no secondary functional/ aesthetic value; no defined streetscape.
- Lack of district-wide signage and wayfinding strategy.

## PEDESTRIAN + VEHICULAR CONNECTIONS

The pedestrian and vehicular networks within the FIB district are not cohesive. The district is industrially rooted and is focused around trailer truck traffic. Using 'business as usual' design standards in industrial settings, such as FIB, can provide a dangerous situation for the pedestrian. Thoughtful design standards and recommendations could provide a functional and pleasant operating space for the pedestrian and vehicle.

- **Pedestrian Connections** throughout the study area are not adequately addressed. Sidewalks along FIB provide a place for people to walk; however, it is still dangerous to walk along this heavily traveled road with little, to no, safety barriers protecting the pedestrian. As shown in the photographs below, when sidewalks are provided, the inadequate and improperly designed roadways create situations where trucks damage right-of-way infrastructure such as sidewalks. Due to the industrial base of

this district, most standards are focused around semi-truck traffic, which tends to be scaled larger than that which would accommodate a pedestrian. Pedestrian scaled design would allow to feel more comfortable within the space.

- **Vehicular connectio**ns do little to promote pedestrian activity. Roads are wide throughout the entire district to accommodate tractor trailer traffic. Their relative access to major highways and arterials, provide an ideal situation for moving heavy tractor trailer traffic. Rights of ways are generous, and could potentially be an opportunity to initiate a green infrastructure program. Throughout the secondary road network, there is little connectivity between industrial development complexes. As shown in red, in **Figure A.3-7**, the secondary road network works as a cul-de-sacs, funneling semi-truck traffic to specified traffic lights.

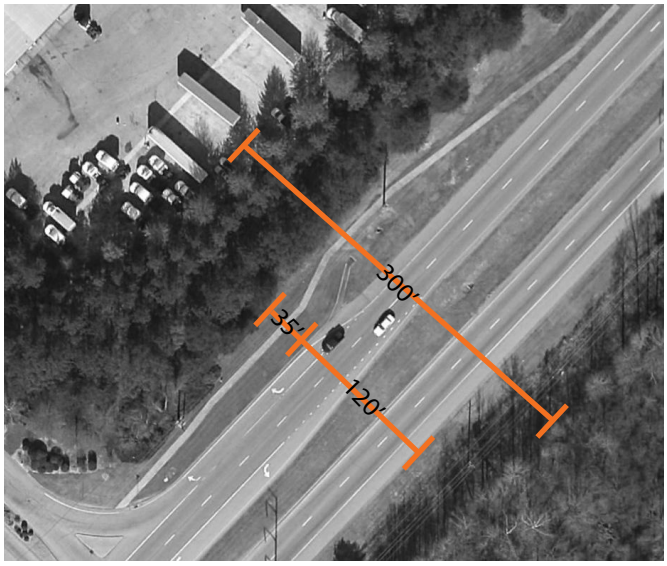



FIGURE A.3-6: FIB SETBACK MEASUREMENTS


FIGURE A.3-7: SECONDARY CONNECTIVITY ANALYSIS

## SIDEWALK, BUS ROUTE, AND BIKE

**Figure A.3-8** below is a sample analysis of FIB regarding pedestrian components such as bus stops, bus shelters, sidewalks, bike paths/lanes and parcel connectivity. As shown, sidewalks are disjointed throughout the district, providing dangerous situations for the pedestrian. There are many bus stops along the FIB, which appear to serve the district well. There are no County recognized dedicated bike paths within the FIB District.

## STREETSCAPE

Streetscapes within the study area abide largely by GDOT standards. Wide roads to accommodate trailer truck traffic on both FIB and many of the secondary roads. In the pictures below, typical streets within the FIB district have anywhere from single lanes in both direction to three lanes with an additional turn lane in each direction. There is limited streetscape along FIB. Within the secondary road networks within industrial developments, there are well designed street sections. These streets helped to 'right-size'

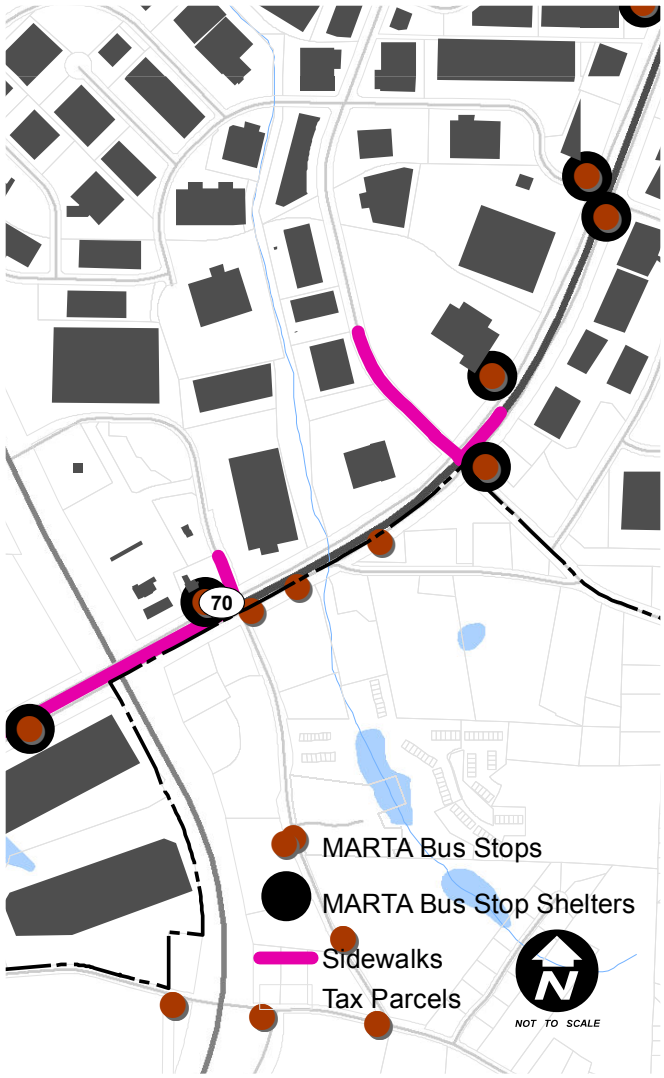



FIGURE A.3-8: SIDEWALK, BUS, AND BIKE ANALYSIS


FULTON INDUSTRIAL BOULEVARD STREET SECTION

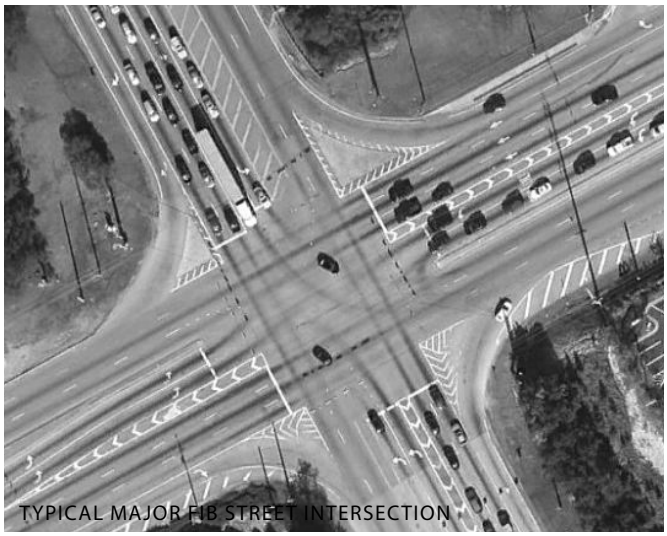

FULTON INDUSTRIAL BOULEVARD STREET SECTION


SECONDARY INDUSTRIAL ROAD STREET SECTION

the pedestrian and vehicular scale to create an appropriate and sensible character. Pedestrian crossings at major intersections need to be addressed. Providing adequate pedestrain elements is an easy step to ensuring a functional and well designed space.

## CURB CUT ANALYSIS

A sample curb cut analysis was conducted to illustrate the excessive and fragmented sidewalk/street network. (**Figure A.3-9**) Fragmented sidewalks provide more chances a pedestrian could have a conflict with a vehicle or semi-truck. This is an opportunity to improve and create a more thought-out street design.





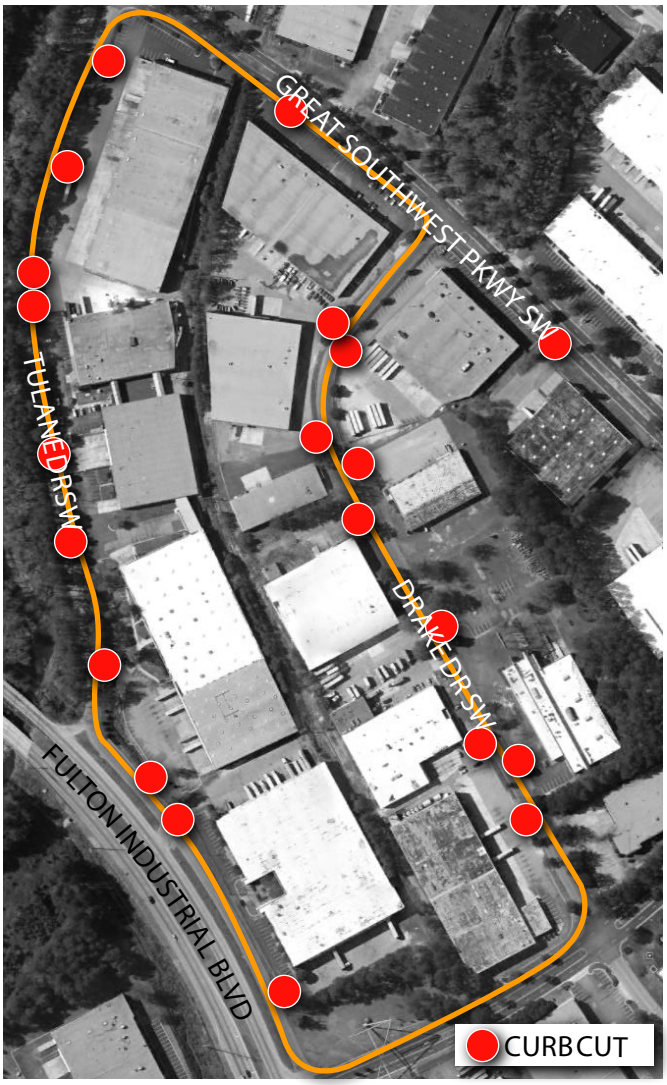



FIGURE A.3-9: CURB CUT ANALYSIS