

III. IMPACTS

*SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

III. IMPACTS

This section describes the socio-economic, cultural and natural environmental resource impacts that are associated with the Preferred Alternative. Other alternatives, discussed in the previous chapter are also discussed where appropriate for comparative purposes.

A. Socio-Economic Environment

Table III-1 shows the State of Delaware, Kent County and the Project Area’s general socio-economic characteristics. Census Blocks were used for the Project Area statistics because they provide the most detailed socio-economic data at the Project Area level of detail.

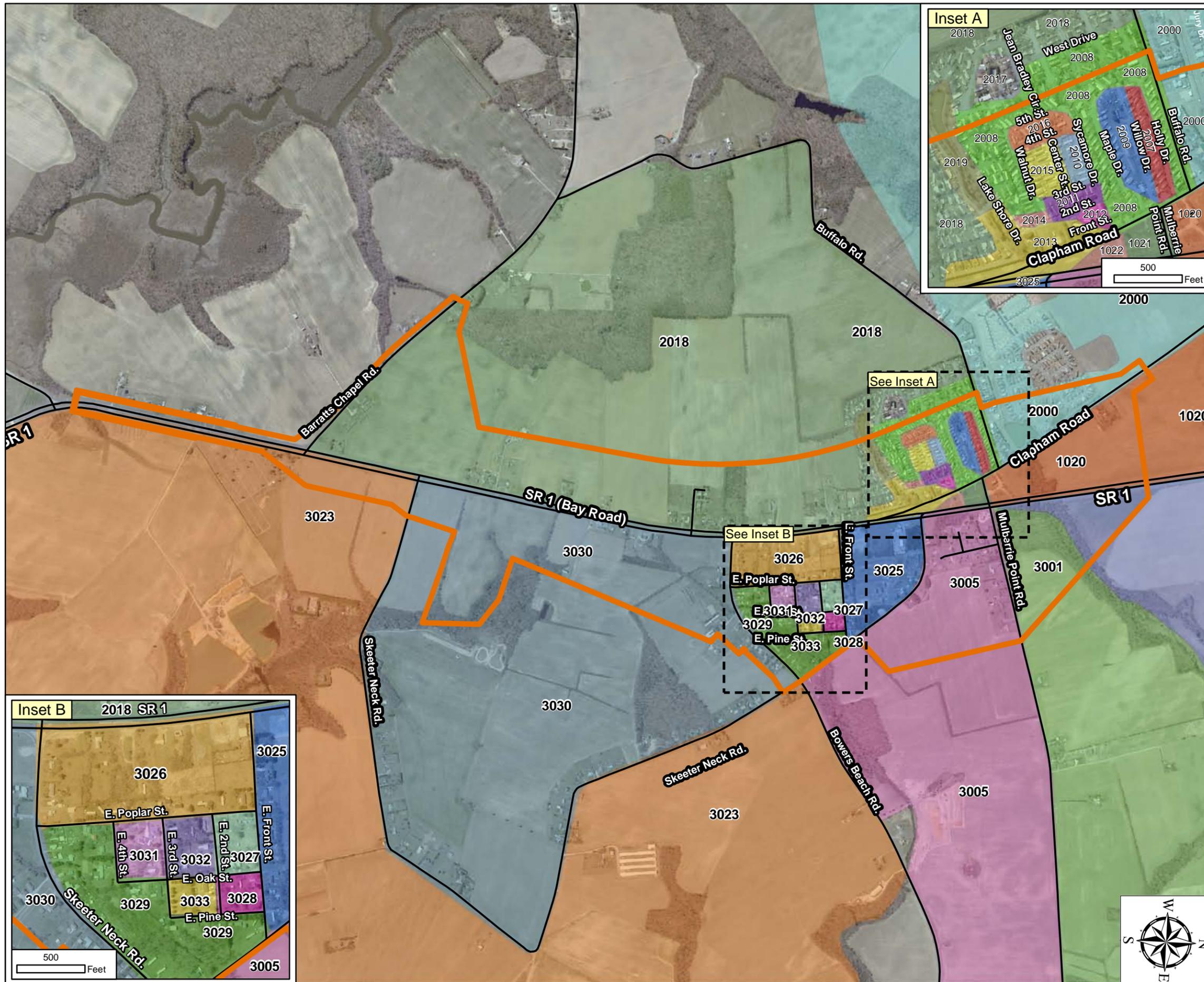
Table III-1: Population and Housing Characteristics for Delaware, Kent County and the Project Area

Summary Statistics	Delaware	Kent County	Project Area ¹
Total Population	783,600	147,601	1,480
*Projected total Population (2020)	1,032,974	160,911	N/A
Housing Units	343,072	60,172	356
% Male/ % Female	48.5% / 51.5%	47.6% / 52.4%	49.6% / 50.4%
% Population 65 Years and Older	13.0%	12.5%	18.5%
Median Household Income	\$47,381	\$47,772	\$40,807
Race/Ethnicity²			
Population of One Race Only	770,567 (98.33%)	143,403 (97.2%)	1,645 (97.4%)
White alone	584,773 (74.63%)	103,777 (70.3%)	1,390 (82.3%)
Black or African-American alone	150,666 (19.23%)	31,585 (21.4%)	211 (12.5%)
American Indian and Alaska Native alone	2,731 (0.35%)	701 (0.5%)	4 (0.24%)
Asian alone	16,259 (2.07%)	3,209 (2.2%)	19 (1.12%)
Native Hawaiian and Pacific Islander alone	283 (0.04%)	84 (0.1%)	2 (0.12%)
Some Other Race alone	15,855 (2.02%)	4,047 (2.7%)	19 (1.12%)
Two or more Races	13,033 (1.66%)	4,198 (2.8%)	44 (2.60%)
Hispanic or Latino	37,613 (4.8%)	5,662 (3.8%)	58 (3.43%)
Notes: *Delaware Population Consortium 1. Census tract data from two census tracts included in Project Area. 2. Race/Ethnicity does not sum to the total number of persons in each tract because: <ul style="list-style-type: none"> • Hispanics can be of any race • Some Census participants may identify themselves with more than one race 			

Source: 2000 US Census

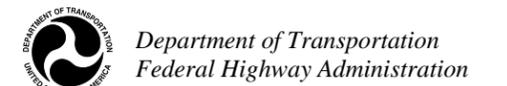
The eastern portion of the Project Area is contained within Census Tract 424 and the western portion in Census Tract 422.02. **Figure III-1** shows the Census Tracts and Block Groups that overlap the Project Area.

**SR 1, Little Heaven
Grade Separated Intersection
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Project Area
 Census Blocks

Figure III-1
Census Blocks



1. Neighborhoods and Communities

The Project Area is home to approximately 1,480 residents that reside in the area's 356 housing units. Most of those residents live within the five residential subdivisions of Barker's Landing, High Point, Tara, Bakers Choice and Ocean Drive Manor (shown on **Figure III-2**). Several residential subdivisions are proposed in close proximity to the Project Area.

Access to all of these subdivisions would be maintained either at their existing access points or at new safer, relocated access points. Each of the communities would benefit from safer access to SR 1 and across SR 1 via the grade separated intersection. No adverse impacts to this subdivision would result from implementing the Preferred Alternative.

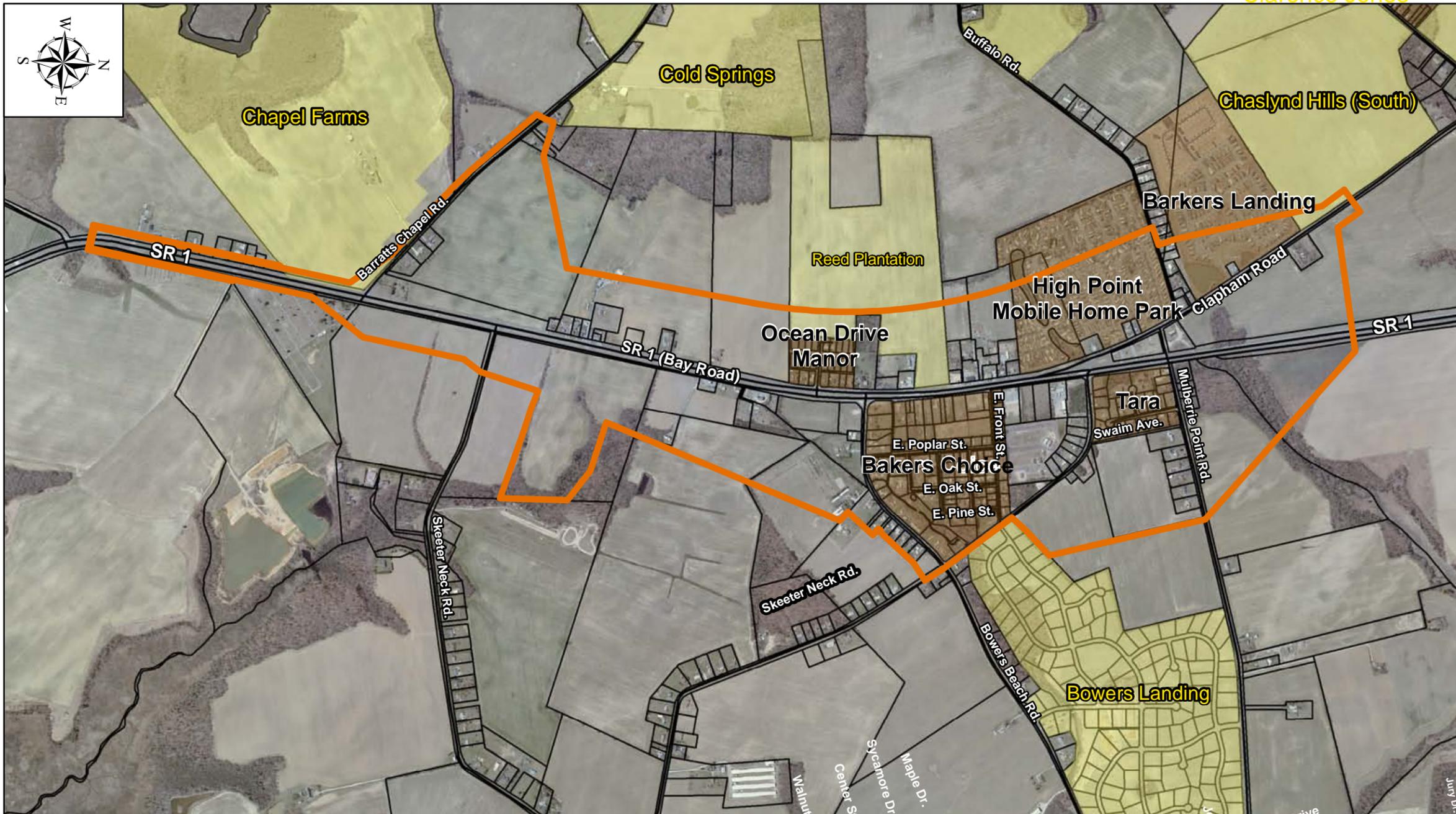
Barker's Landing is a medium-density residential subdivision composed of approximately 125 manufactured homes. It is located northwest of the intersection of Clapham Road and Buffalo Road. Jury Drive provides the sole access point onto Clapham Road.

The High Point subdivision is comprised of approximately 200 manufactured homes. It is located at the southwest quadrant of the intersection of Clapham Road and Buffalo Road to the south of the Barker's Landing subdivision. This community was identified as a potential Environmental Justice community. There are two existing access points to this community along southbound Clapham Road. One would be closed due to traffic safety issues. A new access point would be provided along Buffalo Road as a result of the implementing the Preferred Alternative. This new access point would result in a partial right-of-way acquisition and the relocation of two manufactured homes. No adverse impacts to this subdivision would result from implementing the Preferred Alternative.

The Tara subdivision consists of 18 single-family homes. It is located off of eastbound Mulberrie Point Road and is bordered by North Skeeter Neck Road to the south and to the east by a single-family residence fronting Mulberrie Point Road and an agricultural field. The Tara subdivision consists of two cul-de-sacs (Swaim Avenue and Blevins Street). The only access point to this neighborhood is at Swaim Avenue off Mulberrie Point Road. Two total acquisitions with residential relocations would result as part of the implementation of the Preferred Alternative in order for a new road connecting Mulberrie Point Road and the new east service road. The community would maintain its existing access point at Swaim Avenue and Mulberrie Point Road. Direct access to SR 1 would be removed. No adverse impacts to this subdivision would result from implementing the Preferred Alternative. The new access would be safer and would divert through traffic around the subdivision instead of in front of it.

The Bakers Choice subdivision is comprised of approximately 80 manufactured homes. It is bound by SR 1 to the West, East Front Street to the North and Skeeter Neck Road to the South and East. There are six total acquisitions with relocations in the subdivision that would result from the acquisition of right-of way.

The Ocean Drive Manor subdivision consists of 14 single-family homes, ten of which front southbound SR 1 to the north and south of Wilkins Avenue. The other four are located along the cul-de-sacs of Wilkins and Govans Avenues, which are cul-de-sacs where their only access is to SR 1. There are an additional 14 undeveloped subdivided parcels along the right-of-way for what would be a future extension of Govans Avenue.



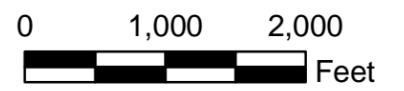
**SR 1, Little Heaven
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Project Area

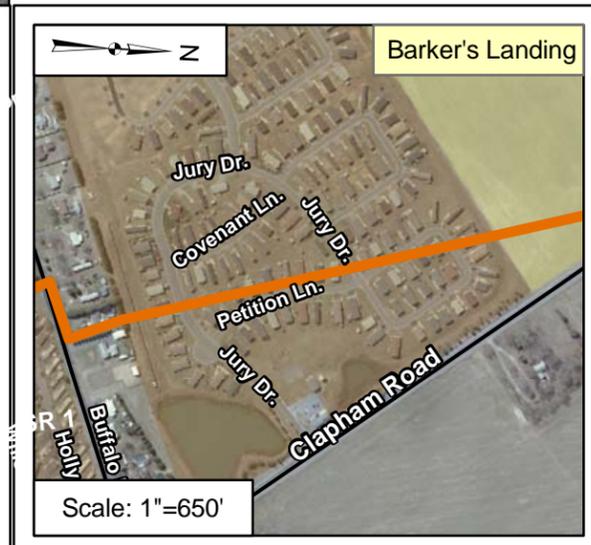
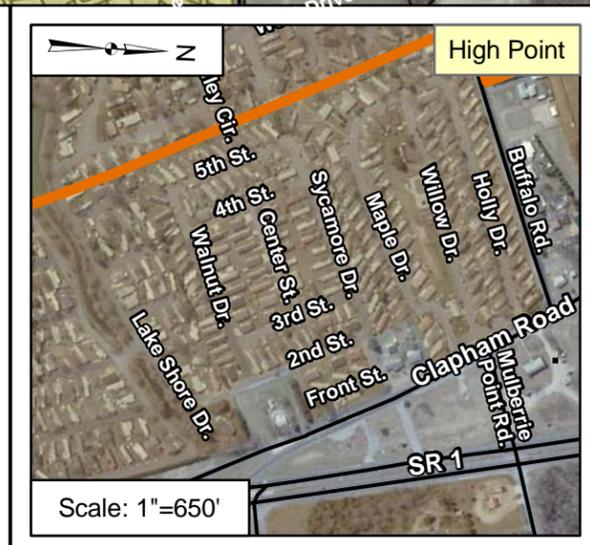
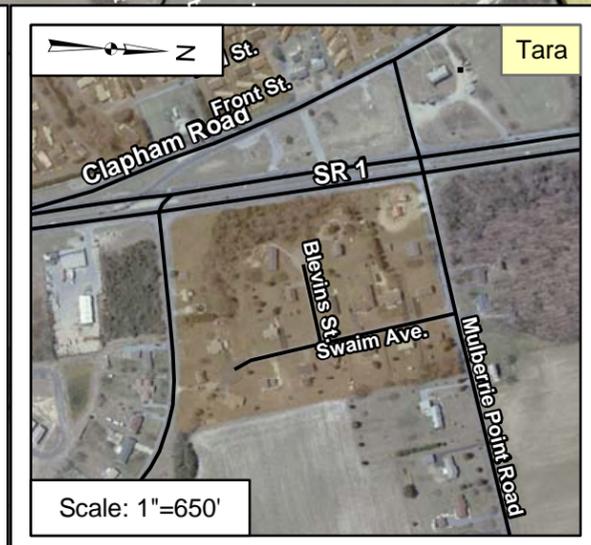
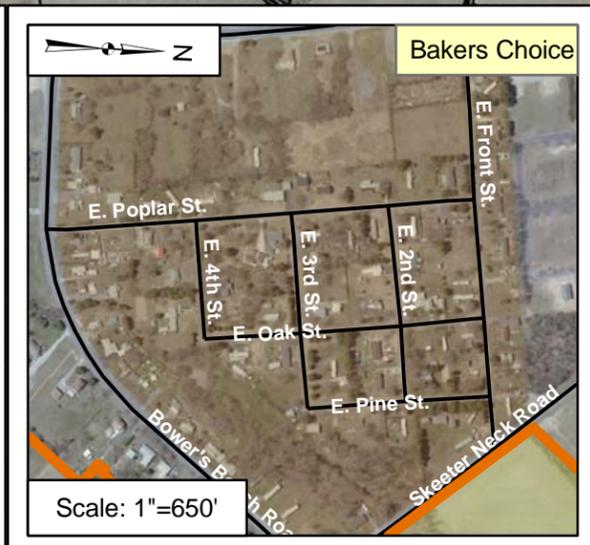
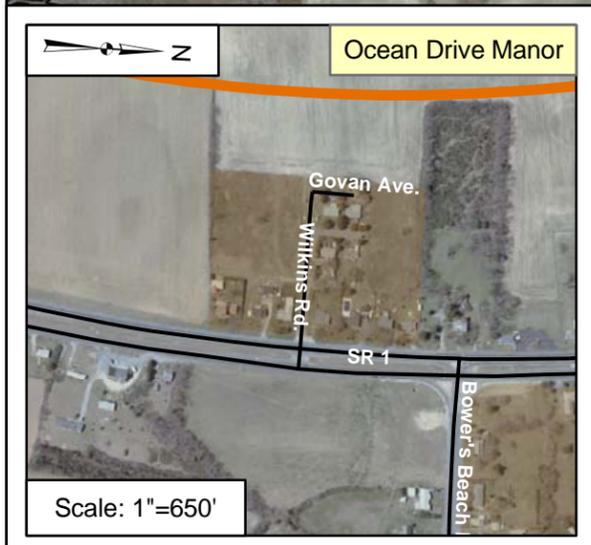
Neighborhood/Community

- Existing Subdivision
- Proposed Subdivision
- Property Boundaries

**Figure III-2
Neighborhoods and Communities**



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2. Relocations

There are twelve parcels requiring relocation assistance and payments under Preferred Alternative C. Ten of the parcels would be total acquisitions and two would be partial acquisitions. Although some of the parcels have multiple uses they generally consist of seven of the twelve parcels being businesses and five of the twelve parcels consisting of residential uses.

Most of the businesses in the Project Area have access directly to SR 1. No impacts to residential or business properties are anticipated for the No-Build Alternative. Each of the build alternatives (Alternatives A, B, C, D, E and F) would require some right-of-way acquisitions and/or relocations of residences and businesses as shown in **Table III-2**.

All right-of-way acquisitions and relocations will be done in accordance with the requirements of the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* as amended in 2000. According to the *Act* persons displaced by federally funded projects will be provided with relocation assistance and are to be treated fairly, consistently and equitably so that they will not suffer disproportionate impacts as a result of the project. Businesses and residential properties that currently have direct access to SR 1 would be provided with alternate access via the service roads in place of SR 1.

A project relocation plan was developed to address relocations. There is presently an ample supply of comparable or better replacement housing available and it would appear that an adequate supply of available housing will be available at the time of relocation as the area continues to maintain its current levels.

Table III-2: Properties Affected under Each of the Build Alternatives*

Potential Right of Way Impacts	Unit	Alternatives						
		No-build	A	B	C	D	E	F (1.81 miles)
Total of Properties Affected*	Number	0	56	52	72	35	38	42
Total Right-of-Way Acquisition	Acres	0	85.92	79.86	76.93	62.48	64.63	64.10
Residential/Agricultural	Acres	0	73.99	68.02	64.53	53.24	54.16	55.20
Business	Acres	0	11.93	11.84	12.40	9.24	10.46	9.52
Residential Relocations	Number	0	22	17	5	14	14	14
Business Relocations	Number	0	10	10	7	8	8	8

*Affected properties are any lots or tax parcels where encroachment of the project alternative may occur.
NOTE: The length of Alternatives A and B is approximately 1.42 miles. The length of Alternatives C is approximately 2.76 miles and the length of Alternatives D through F is approximately 1.95 miles.

3. Environmental Justice Communities

Executive Order (EO) 12898 *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* was signed on February 11, 1994. The EO requires the assessment of disproportionately high adverse human health and environmental impacts on minority and low-income populations resulting from proposed federal actions.

EO 12898 requires that every project using federal aid develop its own unique public outreach program that specifically addresses the individual community needs within that Project Area. The public outreach program utilized during the project development of these improvement alternatives was previously discussed in *Chapter II. A. Project History and Public Involvement*. Several meetings provided public outreach opportunities to individuals in the Project Area and allowed them to provide meaningful input and comments that were taken into consideration the alternatives development, the selection of Preferred Alternative C and the refinements made to

the preferred alternative as it progressed through the design. Based on the information provided in this section no adverse impacts are anticipated based on the implementation of the preferred alternative because it provides safe and efficient access to these communities.

a. Low Income Population

EO 12898 adds low income populations to the list of populations which should be investigated to ensure that they are not excluded from the benefits of the project, or subject to discrimination caused by federal programs, policies and activities. The EO identifies *low-income persons* as individuals whose median household income is at or below the Department of Health and Human Services (DHHS) poverty guidelines. The poverty guidelines issued by the DHHS are abstracted from the original poverty thresholds and are updated each year by the United States Census Bureau. Despite being several years old, the 2000 U.S. Census provides the only complete data at the Census block group level for individuals at or below the poverty level.

Based on the 2000 U.S. Census, about 8.10% of families and 10.70% of the population of Kent County were below the poverty level. As shown in **Table III-3** persons below the poverty level are greatest in Block Group 1 of Census Tract 422.02, where 168 or 9% of individuals in that Block Group are below the level and Block Group 3 of Census Tract 424 where 125 or 12% are below the poverty level. In Block Group 2 of Census Tract 422.02, eight percent, or 95 persons were below the poverty line.

Table III-3: Project Area Census Block Groups by Number of Persons at or Below the Poverty Level

Census Tract/Block Group	Persons at or Below the Poverty Level	
	Number	Percent of Census Block
Tract 422.02/Block Group 1	168	9%
Tract 424/Block Group 3	125	12%
Tract 422.02/Block Group 2	95	8%
Block Group Totals:	388	13%

Source: Year 2000 U.S. Census

b. Minority Population

The EO reaffirms the provisions of Title VI of the Civil Rights Act of 1964 and related statutes. Title VI requires federal agencies to ensure that their programs, policies and activities do not have the effect of excluding populations from the benefits of the project, or subjecting persons or populations to discrimination based on race, color, or national origin.

The EO identifies *minority persons* as a person who is African American (a person having origins in any of the black racial groups of Africa); Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture origin, regardless of race); Asian American (a person having origins in any of the original peoples of the Far East, South East, the Indian subcontinent, or the Pacific Islands); American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

Table III-4 summarizes the race, ethnicity and minority population for each of the 26 Census Blocks that overlap the Project Area and ranks them in order by minority population which coincides with the mapping on **Figure III-3**.

Twenty-one percent or 314 individuals of the total 1,480 population in the Census Blocks that overlap the Project Area are minorities. Based on the analysis, the two communities of High Point and Baker’s Choice were identified as potential Environmental Justice communities.

Table III-4: Project Area Census Block Groups Ranked by Total Minority Population

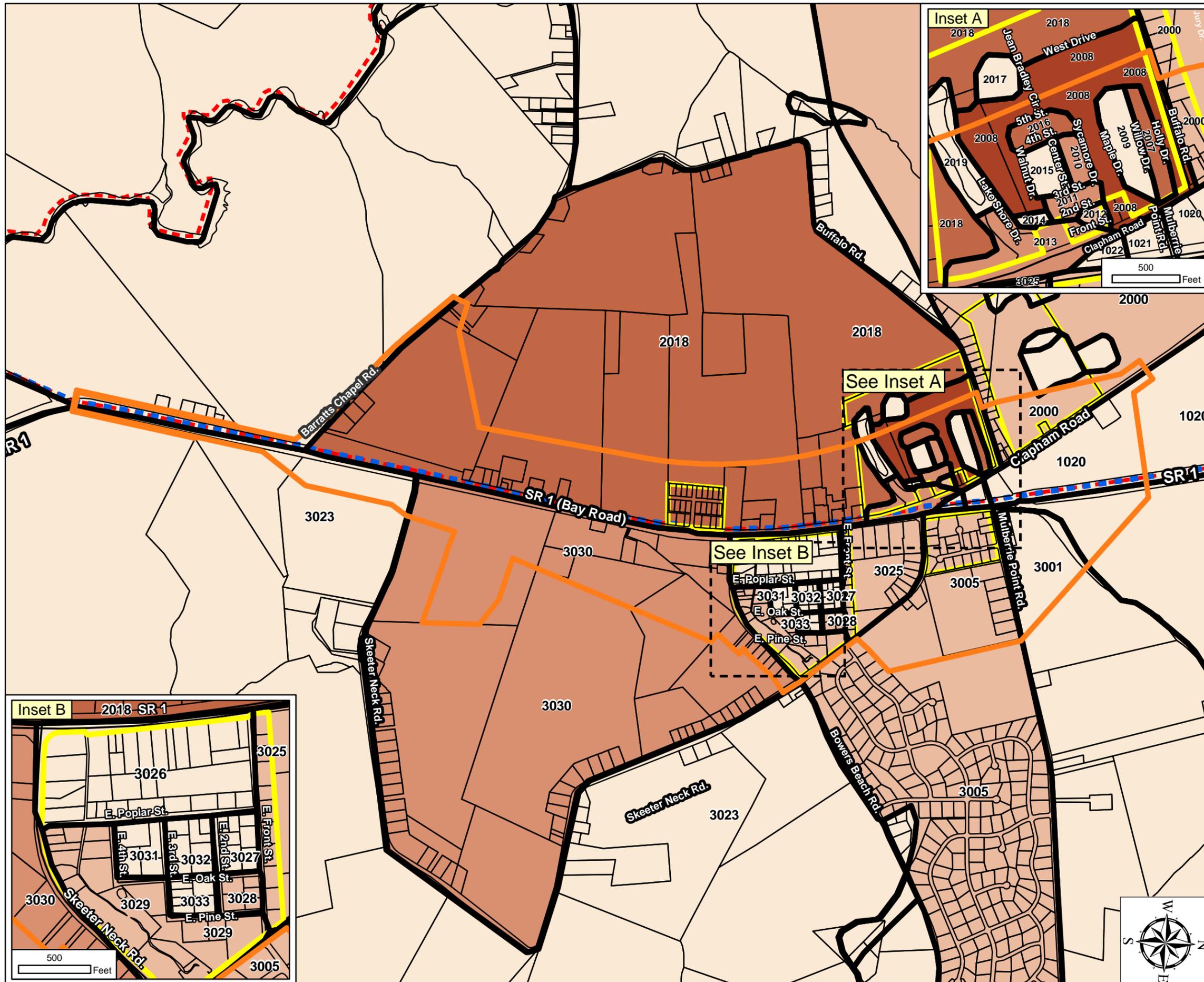
Geography		Race							Ethnicity	Totals		
Census Tract	Census Block	White alone	Black or African American alone	American Indian or Alaska Native alone	Asian alone	Native Hawaiian or Pacific Islander alone	Other Race alone	Two or More Races	Hispanic or Latino	Total Population	**Minority Population	Percent Minority
422.0	2008	236	60	--	7	--	13	7	23	323	110	34%
422.0	2000	176	40	--	--	--	--	4	4	220	48	22%
422.0	2018	273	14	3	--	--	--	11	4	301	32	11%
422.0	2007	46	15	1	4	--	--	6	--	72	26	36%
422.0	2010	21	8	--	2	--	2	2	8	35	22	63%
424	3030	161	11	--	--	--	2	4	3	178	20	11%
422.0	2011	30	8	--	1	--	--	--	7	39	16	41%
422.0	2013	36	14	--	1	--	--	1	--	52	16	31%
422.0	2016	21	6	--	--	2	--	--	6	29	14	48%
424	3005	60	10	--	--	--	--	1	--	71	11	15%
422.0	2012	20	2	--	--	--	--	8	--	30	10	33%
424	3025	41	9	--	--	--	--	--	--	50	9	18%
424	3023	37	7	--	--	--	--	--	--	44	7	16%
424	3028	8	2	--	--	--	2	--	2	12	6	50%
424	3029	60	4	--	--	--	--	--	1	64	5	8%
422.0	2009	42	--	--	2	--	--	--	--	44	2	5%
424	3001	19	--	--	2	--	--	--	--	21	2	10%
424	3026	41	1	--	--	--	--	--	--	42	1	2%
422.0	1020	5	--	--	--	--	--	--	--	5	--	>1%
422.0	2014	9	--	--	--	--	--	--	--	9	--	>1%
422.0	2015	0	--	--	--	--	--	--	--	0	--	>1%
422.0	2019	0	--	--	--	--	--	--	--	0	--	>1%
424	3027	12	--	--	--	--	--	--	--	12	--	>1%
424	3031	10	--	--	--	--	--	--	--	10	--	>1%
424	3032	21	--	--	--	--	--	--	--	21	--	>1%
424	3033	5	--	--	--	--	--	--	--	5	--	>1%
TOTALS:		1,390	211	4	19	2	19	44	58*	1,689*	357*	21%

Notes: Lighter gray shading on table is provided to make totals for each census block group more visually discernable among other records which have no totals.

*Hispanics may be of any race and people may consider themselves of multiple races and therefore summing the Hispanic or Latino and Minority populations may be greater than the actual minority population.

**Minority Population is the sum of minority race and Hispanic or Latino persons.

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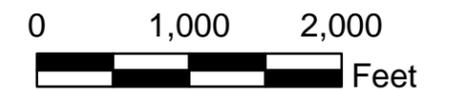


- Project Area
- Census Blocks
- Census Tract 422.02
- Census Tract 424
- Existing Communities

Minority Population

- 0 - 2
- 3 - 12
- 13 - 22
- 23 - 33
- 34 - 110

Figure III-3
Environmental Justice



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The High Point subdivision had the greatest concentration of minority population within the Project Area. It is contained within Census Tract 422.02 and the census blocks shown in **Table III-5**, which consist of 248 minority individuals, or 79% of the minority population within the Project Area living in that community. Census Block 2017 is not within the Project Area. Two residences would need to be relocated in order to add an entrance along Buffalo Road. No adverse impacts are anticipated based on these access improvements.

Table III-5: High Point Community Census Block Groups

Geography			Race							Ethnicity		Totals	
Rank	Census Tract	Census Block	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Pacific Islander	Other Race	Two or more Races	*Hispanic	**Minority	Population	Percent Minority
1	422.02	2008	236	60	--	7	--	13	7	23	110	323	35%
2	422.02	2018	273	14	3	--	--	--	11	4	32	301	10%
3	422.02	2007	46	15	1	4	--	--	6	--	26	72	8%
4	422.02	2010	21	8	--	2	--	2	2	8	22	35	7%
6	422.02	2013	36	14	--	1	--	--	1	--	16	52	5%
7	422.02	2011	30	8	--	1	--	--	--	7	16	39	5%
8	422.02	2016	21	6	--	--	2	--	--	6	14	29	4%
11	422.02	2012	20	2	--	--	--	--	8	--	10	30	3%
15	422.02	2009	42	--	--	2	--	--	--	--	2	44	1%
21	422.02	2014	9	--	--	--	--	--	--	--	--	9	>1%
25	422.02	2015	--	--	--	--	--	--	--	--	--	--	--
26	422.02	2019	--	--	--	--	--	--	--	--	--	--	--
Totals:			734	127	4	17	2	15	35	48	248	934	79%

Notes: Lighter gray shading in the table is provided to make totals for each census block group more visually discernable among other records which have no totals.

*Hispanics may be of any race and people may consider themselves of multiple races.

**Minority Population is the sum of minority race and Hispanic or Latino persons.

4. Land Use/Land Cover

a. Existing Land Use/Land Cover

The SR 1, Little Heaven Project Area is dominated primarily by agricultural and residential land uses with commercial land uses adjacent to SR 1, as shown in **Figure III-4**. Residential land use occurs throughout the Project Area. The neighborhoods and communities are discussed in Section III.5. There are approximately 259 land parcels totaling 153,876 acres with at least a portion of them overlapping the Project Area boundary. Of the 259 total parcels 193 of them are in residential uses, 50 are agricultural uses and 16 are business uses. **Table III-6** shows the acreage and percentage of each land use present within the Project Area.

Table III-6: Existing Land Use/Land Cover in the Project Area

Land Use/Land Cover	Acres (approximate)	Percent of Total
Residential	217	33%
Commercial	19	3%
Agricultural	346	53%
Forests	10	2%
Shrub/Brush Rangeland	8	1%
Recreational	2	0%
Wetlands	8	1%
Water	2	0%
Public Roads	47	7%
Total:	659	100%

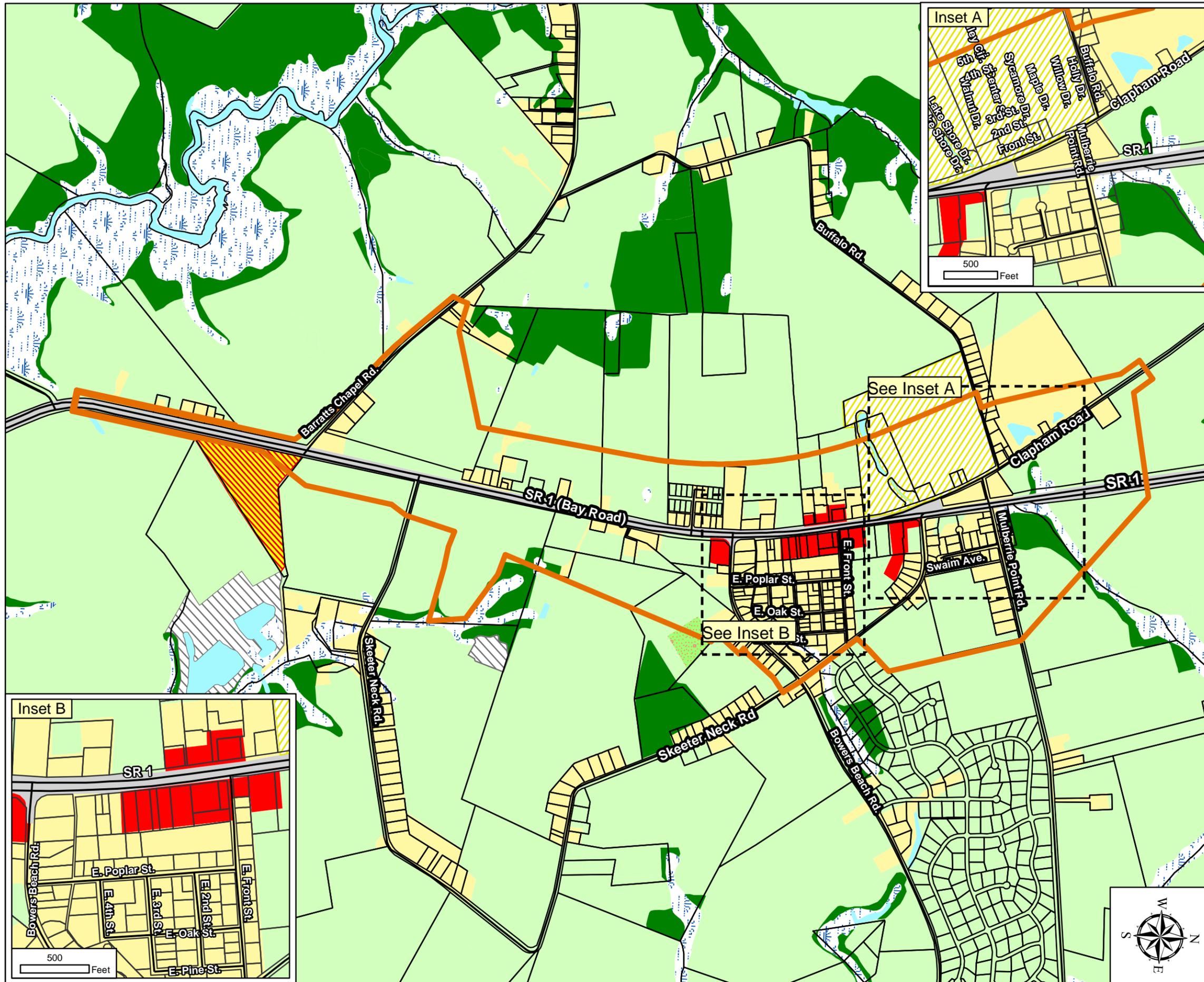
b. Future Land Use/Land Cover

Some changes will occur at the parcel-level for the purchase of right-of-way for the improvements, however generally, future land use will not be affected in the Project Area. Future land use within the Project Area will be primarily influenced by the recommendations of existing master plans and zoning ordinances. With the implementation of the build alternatives an alternative future land use may need to be developed based on the changes to access to SR 1. Several new developments are proposed in the vicinity of the study area. Based on current zoning and development practices, land use within the Project Area is expected to become more urban, particularly in the area designated for growth west of SR 1. Future land uses, proposed development and the LDI Investment Level Areas are shown in **Table III-7** and on **Figure III-5**.

Table III-7: Future Land Use/Land Cover in the Project Area

Land Use/Land Cover	Acres (approximate)	Percent of Total
Neighborhood Business	46	7%
Multi-Family	7	1%
Single Family	3	0.5%
Residential Manufactured Home	119	18%
Agricultural Residential	66	10%
Agricultural Conservation	272	41%
Agricultural Preservation District	57	9%
Area of Roads	89	13.5%
Total:	659	100%

**SR 1, Little Heaven
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Environmental Assessment**

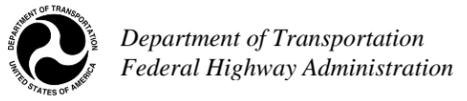


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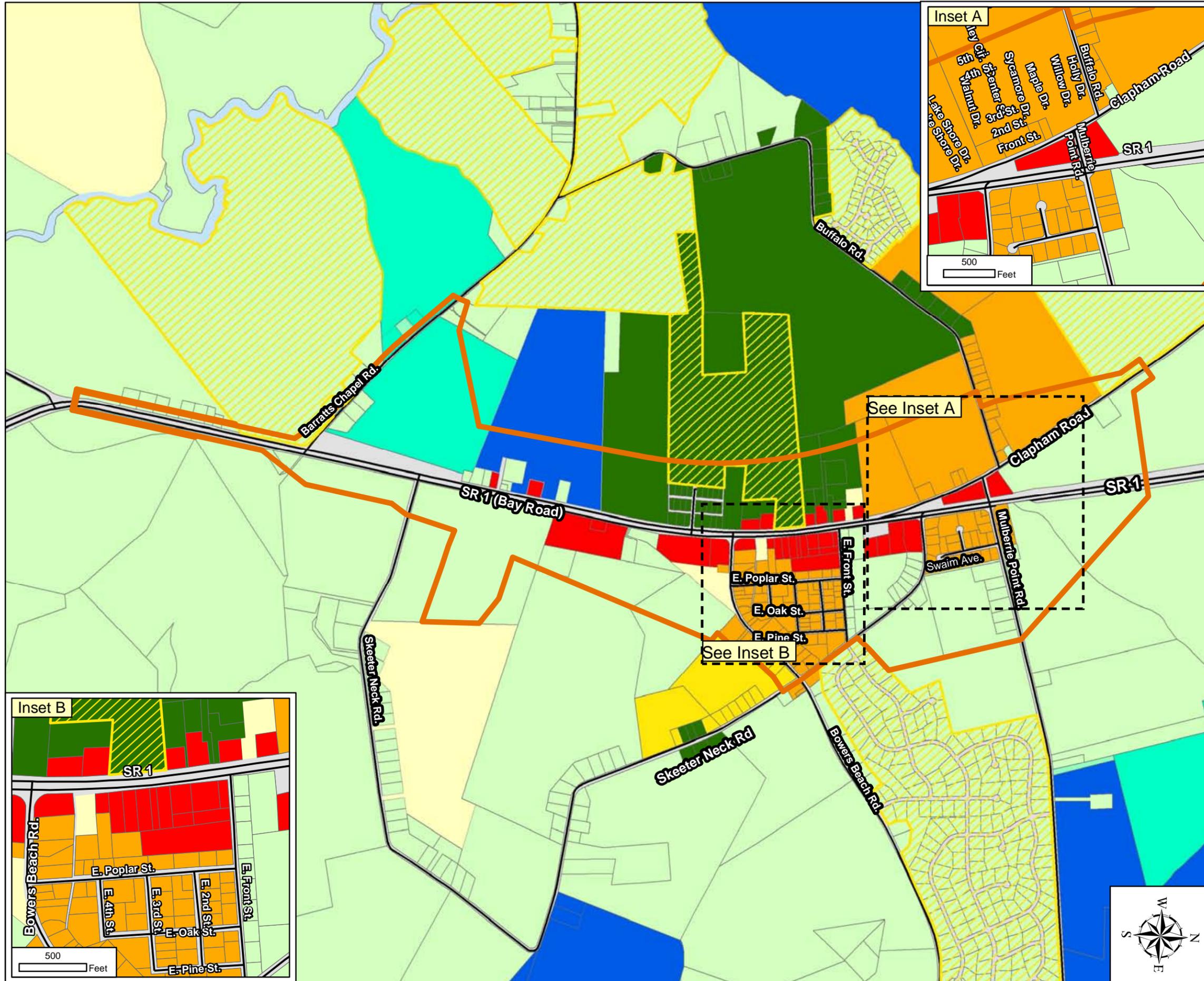
- Project Area
- Single Family Residential
- Multi-Family Residential
- Mobile Home Parks
- Retail
- Other Commercial
- Industrial
- Transportation/Communication
- Utilities
- Urban/Built-up
- Institutional/Gov't
- Agricultural
- Recreational
- Forestland
- Clear Cut
- Water
- Wetlands
- Beach/River Bank/Sandy Areas
- Extraction
- Transition

Source: Delaware Office of State Planning Coordination, 2002

**Figure III-4
Existing Land Use**



**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**



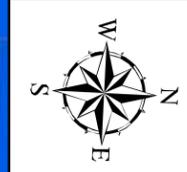
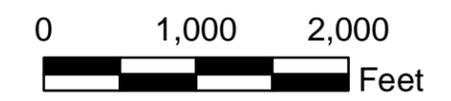
Legend

- Project Area
 - Proposed Major Subdivision
 - Right of Way
- *Kent County Zoning Code**
- Neighborhood Business (No maximum density)
 - Multi-family Residential
 - Single Family Residential (3.5 units/1 acre)
 - Residential Manufactured Home
 - 2 units/1 acre (growth zone major subdivision);
 - 1 unit/1 acre (outside growth zone major subdivision);
 - 4 one acre (minimum) units with a remainder of 1 unit per 10 acres (minimum) (minor subdivision);
 - 2 units/1 acre single family) or (5 units/1 acre in Manufactured home subdivision)
 - Agricultural Conservation
 - 1 unit/1 acre (major subdivision);
 - 4 one acre (minimum) units with a remainder of 1 unit per 10 acres minimum (minor subdivision);
 - 3 units/1 acre (on central sewer and water)
 - Agricultural Residential (AR)
 - 3 units/1 acre (on central sewer and water)
 - Agricultural Preservation Overlay District
 - Agricultural Preservation District with Purchased Development Rights

Source: Delaware Office of State Planning Coordination, 2002

*NOTE: Only zoning represented within the mapped area are shown in the legend.

**Figure III-5
Future Land Use**



Department of Transportation
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c. Livable Delaware Initiative

On March 28, 2001, Governor Minner signed an EO formalizing the LDI. The LDI is a State strategy for directing future growth to areas with existing or planned infrastructure in order to curb sprawl and to preserve agricultural lands and open space throughout the state and target development in and around established communities. **Figure III-6** shows that LDI Investment Level Areas 2, 3 and 4 are located in the Project Area. The Investment Levels are as follows:

Investment Level 1 Areas:

- are often municipalities, census designated places, etc.
- may be an area with a density generally higher than in surrounding areas
- may have a variety of transportation opportunities available
- may have mixed building uses
- may be characterized as having a sense of place, character and shared identity
- may be considered as Transfer of Development Rights (TDR) receiving areas

Investment Level 2 Areas:

- may be less developed areas within municipalities
- may be rapidly growing areas in the counties that have or will have public water and wastewater services
- may be considered as TDR receiving areas
- may be generally adjacent to or near Investment Level 1 Areas

Investment Level 3 Areas:

- may be areas susceptible to leapfrog development that is not contiguous with existing infrastructure
- may be high priority agricultural lands directly adjacent to natural areas
- may be environmentally sensitive areas adjacent pro-development areas
- may be areas that are experiencing some development pressure
- may be areas with existing but disconnected development
- may be areas planned for long term growth, but where development within the next five years may not represent proper and efficient phasing of development
- may be considered as TDR sending or receiving areas

Investment Level 4 Areas:

- Areas where development is not currently preferred and where the State will make investments that will help preserve a rural character, such as investments to promote open space and agriculture.

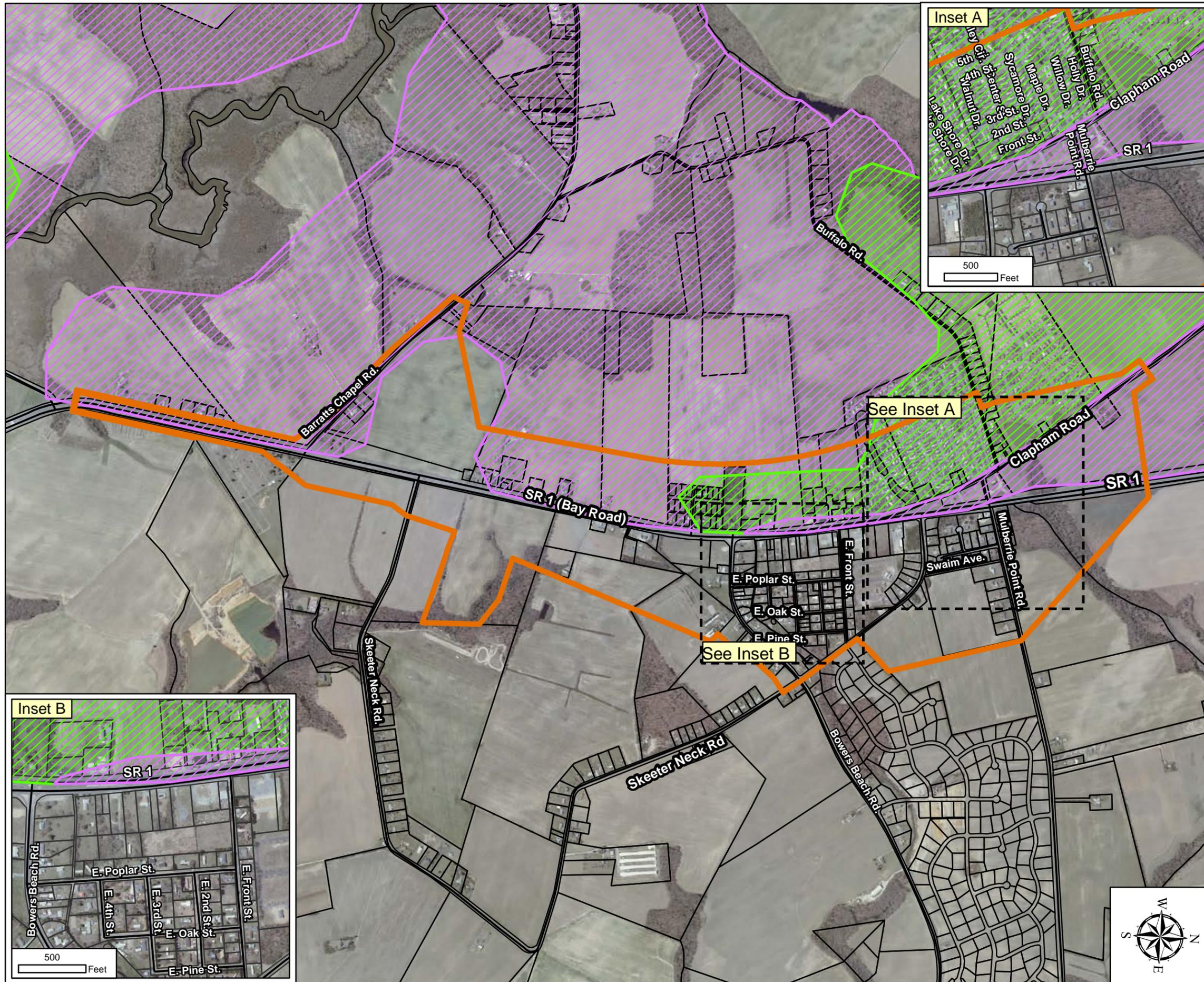
Out-of-Play Areas:

- Lands that generally cannot be developed for reasons that might include: they are Federal-owned or State-owned protected parkland, their development rights have been purchased, State or local regulations prohibit development on them.

d. Land use/Land Cover Impacts

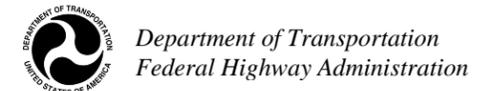
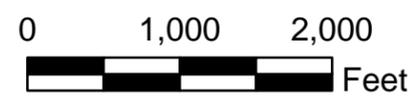
There are no plans for future development that would be impacted by the No-Build Alternative. The build alternatives would convert developed (either residential or commercial) and agricultural land to transportation land use, however the project is not anticipated to adversely impact existing or future planned land use.

SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment



-  Project Area
-  Investment Level 1
-  Investment Level 2
-  Investment Level 3
-  Investment Level 4 (no shading)

Figure III-6
Livable Delaware



5. Agricultural Preservation

Delaware Agricultural Preservation District (APD) are established under the Delaware Agricultural Lands Preservation Program to preserve agricultural lands in Delaware from being re-zoned to any use other than agricultural and primary residential use of the owner of the property and those lands shall not be subject to any major subdivision. This is a voluntary incentive program that allows eligible landowners to receive tax benefits, right-to-farm protection and an opportunity to sell their preservation rights to the State that keeps the land free from development permanently through a process known as Purchase of Development Rights (PDR), if the property qualifies.

The connection between SR 1 and the Barratt's Chapel Road proposed under Alternatives C, D, E and F would impact a portion of the Somy Expansion of the Miller APD which is located north of Barratt's Chapel Road, west of SR 1 as shown in **Figure III-7** on page III-16. The Preferred Alternative will not contribute to the development of this land because the APD designation for the unused portion still designates only agricultural or agricultural-related land uses for the property.

6. Community Institutions, Facilities and Services

A variety of community institutions, facilities and services exist in and around the Project Area as shown on **Figure III-8** on page III-17 and as discussed in the sections below. The improvements will have a benefit to the public because they provide improved travel time to these facilities by eliminating existing traffic signals along SR 1 in the Project Area. The Project also improves access to and from SR 1 from side streets. The project replaces existing bus stops where needed and provides sidewalks at pedestrian locations.

a. Schools and Libraries

There are no schools or libraries located within the Project Area boundary, however the Preferred Alternative will allow for safer school bus routes throughout the community and will provide sidewalks at various locations. The preferred alternative separates the north/south SR1 through traffic from the local traffic.

b. Churches and Cemeteries

The Mount Olive Church, located east of the proposed roadway improvements on Skeeter Neck Road and Barratt's Chapel and Cemetery are located in the Project Area. No right-of-way would be acquired from either facility. Trees would be planted as part of the Preferred Alternative to provide screening of SR 1 from the Barratt's Chapel. A commemorative bell in the right-of-way adjacent to northbound SR 1 will be relocated onto the Chapel's property. No impacts to either property would result from the implementation of the Preferred Alternative. The Preferred Alternative will also improve access to Barratt's Chapel by increasing the shoulder width prior to the entrance to the Cemetery.

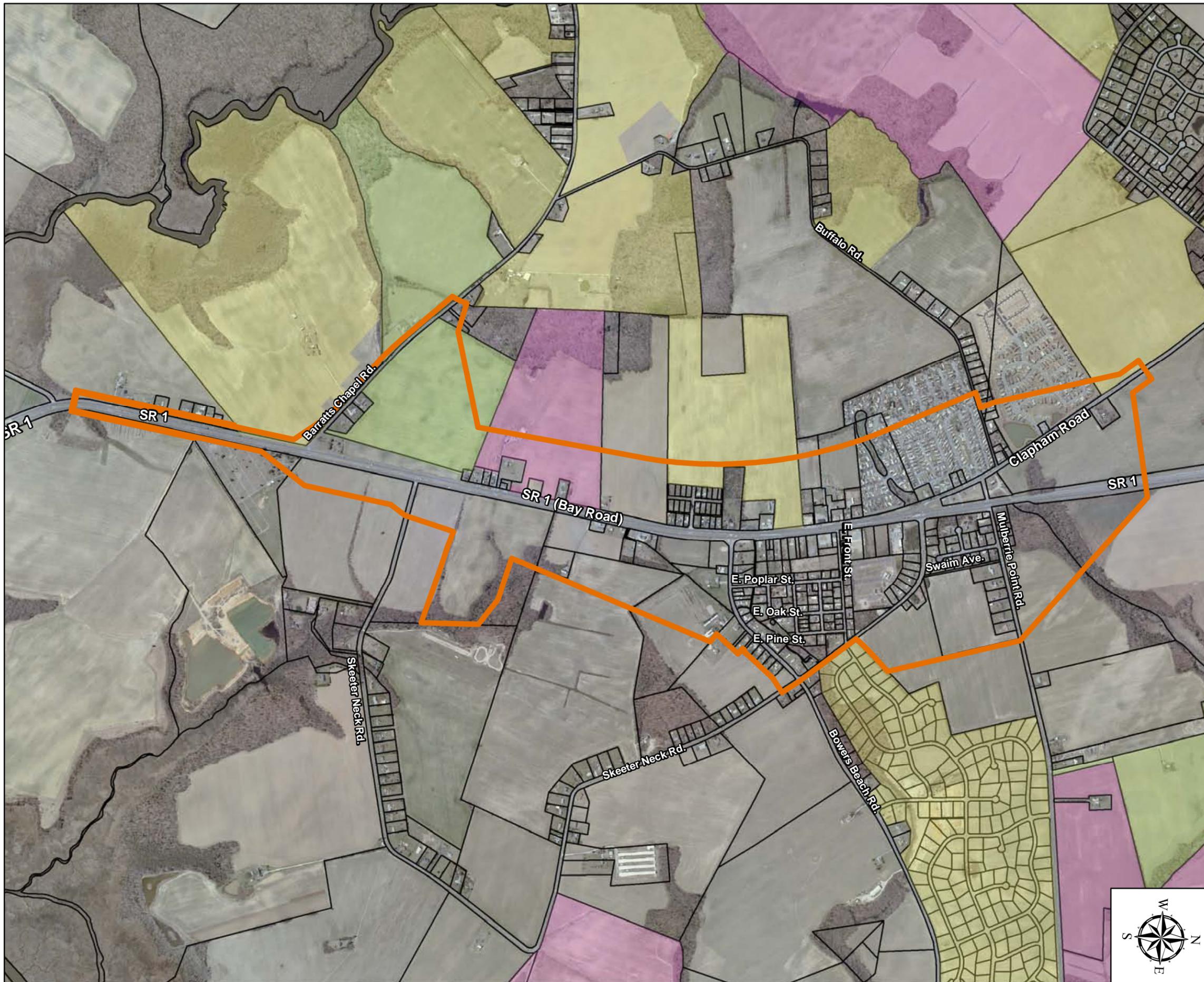
c. Parklands and Recreational Facilities

There are no parklands or recreational facilities located within the Project Area.

d. Health Care Facilities

There are no health care facilities located within the Project Area. The nearest hospital is Milford Memorial Hospital, located in Milford and Kent General Hospital in Dover.

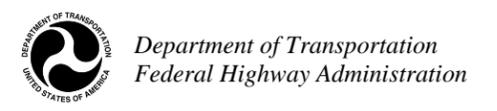
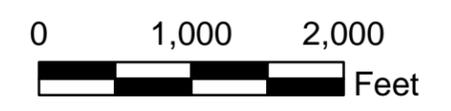
SR 1, Little Heaven
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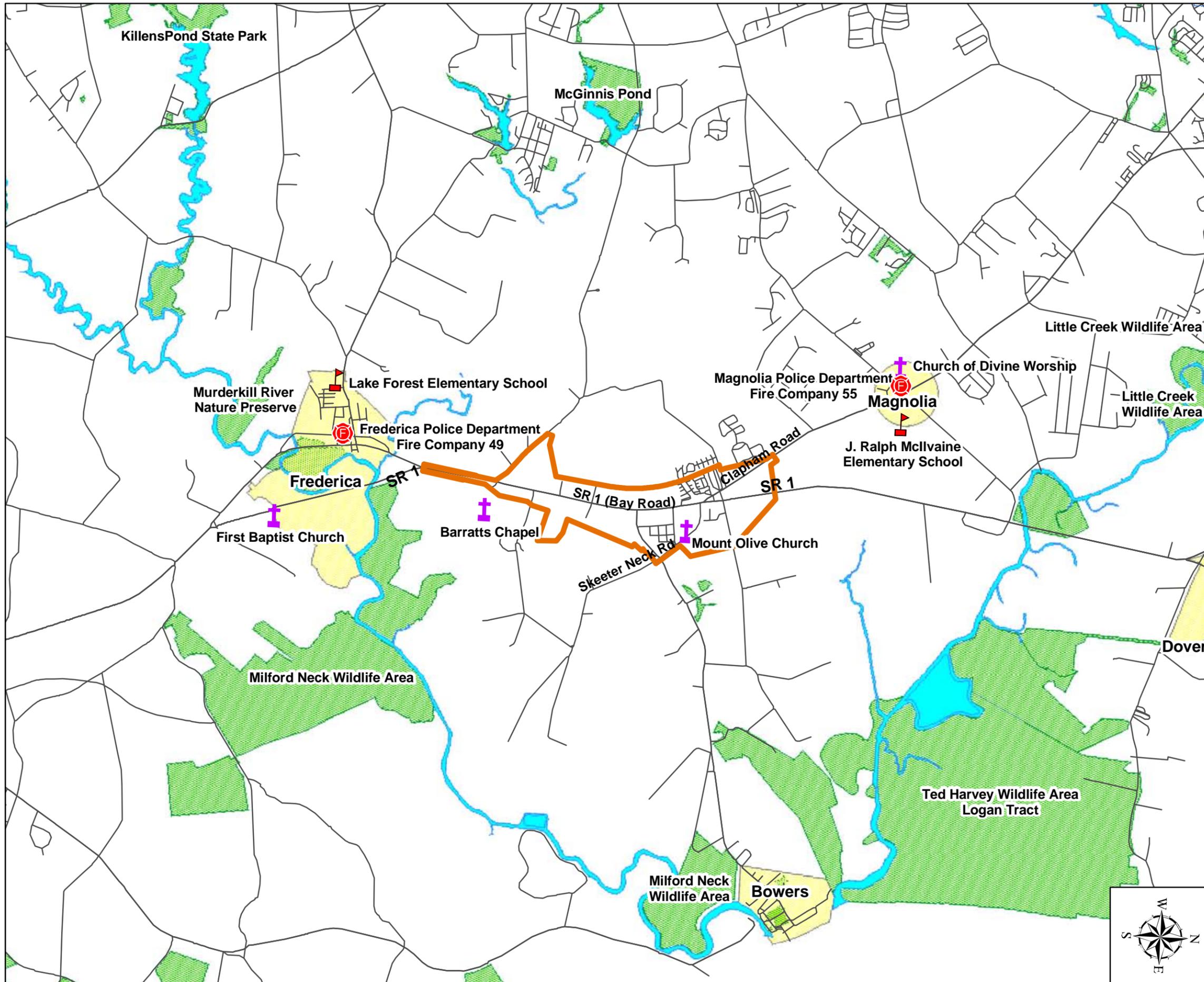


Legend

- Project Area
- Proposed Subdivisions
- Development Right Purchased
- State Agricultural Preservation District

Figure III-7
Agricultural Preservation

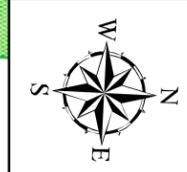
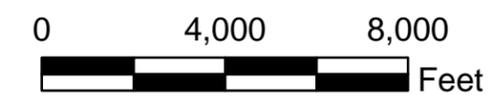




**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

-  Project Area
-  Schools
-  Libraries
-  Cemeteries
-  Churches
-  Fire and Police
-  Parkland/Open-Space
-  Water
-  Municipalities

**Figure III-8
Community Facilities**



 Department of Transportation
Federal Highway Administration

e. Emergency Services and Law Enforcement

Three (3) fire districts are located around the Project Area: Magnolia, to the north (Fire Company 55); Bower's Beach, to the east (Fire Company 40); and Frederica, to the south (Fire Company 49). All three of these fire districts converge in the Project Area. Additionally, Frederica and Bower's Beach share an ambulance service. Both Magnolia and Frederica police departments respond to the Project Area. It should be noted that the Preferred Alternative has been refined based on comments received from the various emergency services agencies and the Project Area and they concur with the Preferred Alternative which are are beneficial to provide better travel times for emergency and law enforcement to destinations in the Project Area.

f. Public Utilities

There are existing electric and communications utilities throughout the project limits that would be relocated under the build alternatives. A cell phone tower is located near the intersection of SR 1 and Mulberrie Point Road. There is no impact to the cell phone tower under any of the build alternatives. The water supply to portions of the area is supplied by Artesian Water Company, Inc. There are no anticipated impacts to the water infrastructure supplying water to the residents.

g. Independent Utilities

There are existing electric and communications utilities throughout the project limits that would be relocated as part of the project. A cell phone tower is located near the intersection of SR 1 and Mulberrie Point Road. There is no impact to the cell phone tower under any of the build alternatives. The water supply to portions of the area is supplied by Artesian Water Company, Inc. There are no anticipated impacts to the water infrastructure supplying water to the residents.

h. Multi-modal Transportation Facilities and Services

In Kent County, local bus transit is only available in the Dover area, with some intercity services between Dover and points to the north and southeast. The DART First State intercity transit operation provides Kent County service with stops in Smyrna, Dover, Milford, Harrington and in the Project Area, in Little Heaven. The preferred alternative upgrades the existing DART bus stops and includes sidewalk along Clapham Road from Buffalo Road to Bowers Beach Road.

Paratransit and special transit services are available throughout Kent County for elderly and disabled residents. DART First State Paratransit provides door-to-door shuttle service for residents aged 60 years or older who are physically or mentally disabled. The Senior Citizen Affordable Taxi (SCAT) offers 50% discounted taxi services to senior citizens and disabled persons. In Kent County, City Cab of Dover and Watkins Cab of Milford provide these services.

Kent County offers facilities and services to promote ridesharing, which includes Park-and-Ride lots and a Statewide Employees Vanpool Program. The average usage of the Park-and-Ride lots is approximately 20 vehicles per weekday. These lots are mostly located within a few miles of downtown Dover and therefore may not be well utilized by residents of the Project Area. There are no Park-and-Ride lots located in the Project Area.

Kent County has seven public aviation facilities, the biggest of which is located at the DAFB. The DAFB permits limited public use at a civil terminal, the Central Delaware Commuter Air Facility. Approved flights may use the facilities at DAFB in limited numbers (not to exceed 37 flights per day and 13,500 per year). Flights in excess of 37 per day are permitted only on NASCAR race days. None of the other public aviation facilities are located within or adjacent to the Project Area.

B. Cultural Resources

1. Methodology

Architectural surveys and evaluations and Phase IA and Phase IB Archaeological Surveys were performed in accordance with Section 101(b) (4) of the NEPA; Section 1 (3) and 2 (b) of *Executive Order 11593*; Section 106 of the *National Historic Preservation Act of 1966, as amended in 1999*; 23 CFR 771; the guidelines developed by the Advisory Council on Historic Preservation (November 26, 1980) and currently being revised; and the amended “Procedure for the Protection of Historic and Cultural Properties,” as set forth in 36 CFR 800 (1991). These statutes and regulations requires that the effect of any federally assisted undertaking on historically significant buildings, structures, objects or sites be taken into account during the project planning process. Significant sites are those listed in or eligible for listing in the National Register of Historic Places (National Register). All survey and evaluations were also undertaken in accordance with the DE SHPO Guidelines for Architectural and Archaeological Surveys in the State of Delaware (1993).

The methodology used for the Phase IA and Phase IB archaeological surveys and the historic architectural identification and evaluation included background research, field surveys and report preparation. The background research included examination of the National Register files, survey reports and maps related to the Delaware Register of Historic Places and National Register and cultural resource surveys and historic site surveys at the DE SHPO. Individual property research was conducted at the Kent County Courthouse in Dover, Delaware and references to archival materials were obtained from the University of Delaware Library. Other repositories visited for property-specific research included the Hagley Eleutherian Mills Museum and Library in Wilmington, Delaware and the Delaware State Archives in Dover, Delaware.

Based on plan concepts of the Preferred Alternative C, an overall Area of Potential Effect (APE) was later established and confirmed for both archaeological and architectural studies to identify historic and archaeological properties that may be involved with the project. For the purposes of Section 106 and NEPA compliance, the project APE is defined as “the geographic area within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist and included resources directly or indirectly impacted by project activities, including acquisition of property, property easements and/or visual and audible effects” (36 CFR Part 800: Protection of Historic Properties).

2. Archaeological Resources

For archaeological resources, a Phase IA Survey was used to assess prehistoric and historic archaeological sensitivity of the APE to archaeological deposits based on the *potential* for archaeological sites to exist or to have been formed in a given area and the *sensitivity* of that area for intact cultural resources. In areas where no sites were documented, the potential presence of prehistoric resources was based primarily on environmental setting – topography, proximity to water and soil quality. The potential presence of historic resources was determined through documentary research. The potential for prehistoric or historic cultural resources to exist in a given area was measured on an ordinal scale as low, moderate, or high. The archaeological potential of 19 parcels was assessed between the years 2007 and 2008.

A Phase IB survey was conducted in 2004/2005 within the initial Archaeology APE. A Phase IB Archaeology Survey Management Summary (Emory 2005) was prepared in 2005 documenting the results of the survey. An addendum to the 2005 Phase IB report was prepared in February 2008. A Phase IB Management Summary that overviews the findings in the surveys that were

conducted in the summer and autumn of 2008 and in the winter of 2008-2009 were submitted to DelDOT in March 2009. A Comprehensive Phase IB Archaeological Survey Report was completed in 2009.

A Phase IB Archaeological Survey of the SR 1, Little Heaven Grade Separated Intersection project was ultimately completed in 2009. Parcels 1-7 have been surveyed; this work took the form of a Phase IB Survey Management Summary Report (Emory 2005) and a Phase IB Addendum report (Lenert 2008). Parcels 8, 10, 12, 14, 16-20 and 23-26 were surveyed in mid-to-late 2008 and early 2009. This work is reported in a Phase IB Management Summary Report (March 2009) and in the Comprehensive Phase IB Archaeological Report (May 2009). The remaining parcels (9, 11, 13, 15, 21-22) constitute areas that were dismissed as a result in changes to the construction plans or were not tested because in consultation with DelDOT Archaeology staff and DE SHPO they were determined to contain no-to-low potential for containing historic or prehistoric archaeological resources.

The current archaeological studies and coordination with the DE SHPO are based on the proposed limits of construction for the Preferred Alternative C. This also includes all areas of stormwater management and wetland mitigation. To date, the archaeological studies consists of 26 parcels containing areas of low, moderate and high potential for prehistoric and historic archaeological resources as listed in **Table III-8**. The historic properties and archaeological sites depicted in **Figure III-9** are listed in **Table III-9**.

a. Impacts to Archaeological Resources

The Comprehensive Phase IB Archaeological Report presents the findings in each of the 26 parcels and the details of the recommendations for additional archaeological investigations. Recommendations for further work were based on finding artifact concentrations that suggest the presence of historic or pre-contact archaeological sites. Specifically, potential archaeological sites have been identified in nine parcels: Parcels 1, 2 (three separate sub-parcels), 5, 7, 18, 25 and 26. The additional work would allow archaeologists to better characterize the nature and integrity of the archaeological deposits, prior to being disturbed by the transportation improvements. DelDOT and DE SHPO will determine the need for any additional investigations.

Provisions for additional archaeological investigations are better prescribed in the Memorandum of Agreement (MOA) can be found in **Appendix A**. The MOA between the FHWA, DelDOT, and the State Historic Preservation Office (SHPO) outlines final steps to be taken to complete the Section 106 consultation process with regards to archaeological sites and disposition of any excess property in the future. Ultimately, archaeological data recovery, public outreach, preservation in place, consulting party protocol with the Native American Federally Recognized Tribes, and other mitigation measures are discussed and administered under the MOA.