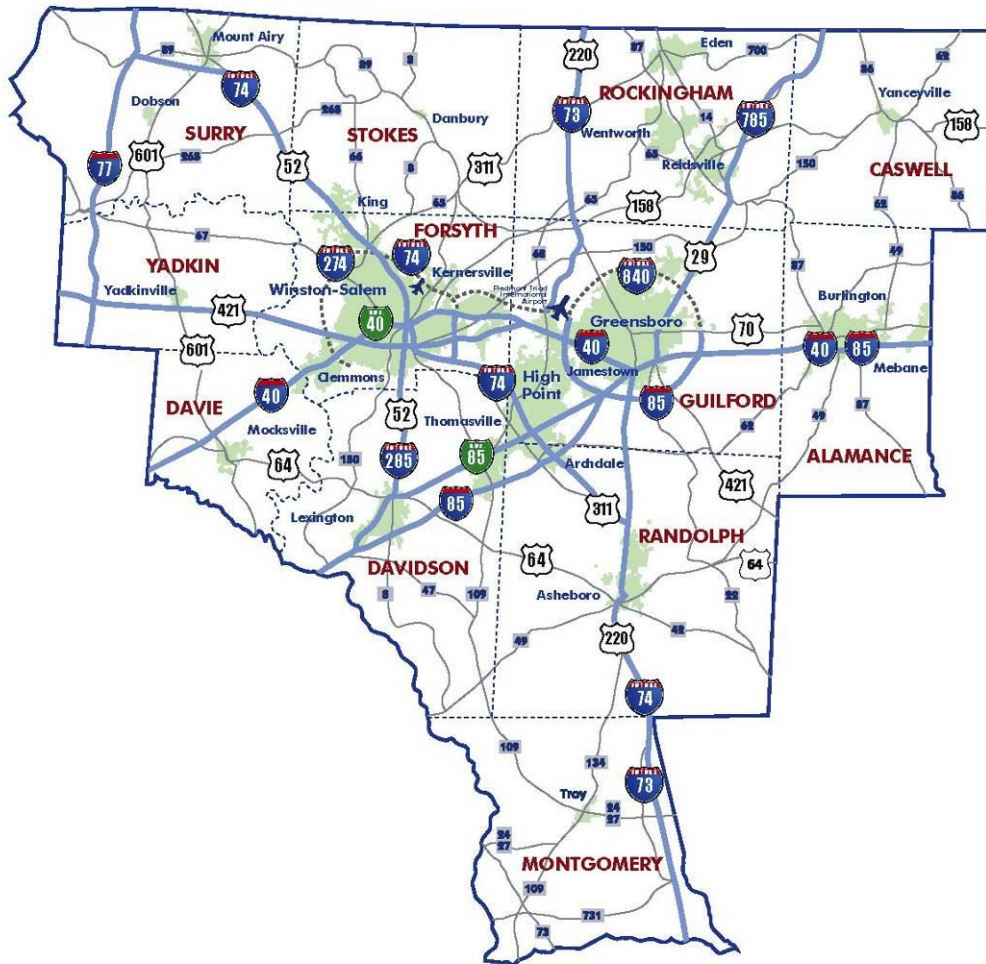


PIEDMONT TRIAD LAND SUPPLY ANALYSIS



FEBRUARY 2011

Prepared for the
**Aerotropolis Land and Infrastructure Committee of the
Piedmont Triad Partnership Aerotropolis Leadership Board**

Prepared by the
**Piedmont Triad Council of Governments (PTCOG) and
Northwest Piedmont Council of Governments (NWPCOG)**



PIEDMONT TRIAD LAND SUPPLY ANALYSIS

FINAL REPORT

February 24, 2011



*Piedmont Triad Council of Governments
Northwest Piedmont Council of Governments*

– PIEDMONT TRIAD LAND SUPPLY ANALYSIS –

This study was commissioned by the Aerotropolis Land and Infrastructure Committee of the Piedmont Triad Partnership's Aerotropolis Leadership Board. The Committee conducted the study in cooperation with local economic developers and planners from throughout the 12-county region. The Piedmont Triad Council of Governments (PTCOG) and Northwest Piedmont Council of Governments (NWPCOG) facilitated the 4-phased land supply analysis and stakeholder involvement process. County tax parcel data was analyzed to identify the top 300 sites most suitable for future economic development. The acreage of top sites was calculated for parcels currently zoned *Residential/Agricultural*; *Non-Residential/Agricultural*; and *Industrial*. All top sites currently zoned industrial were then assessed to calculate the acreage of *Undeveloped (raw) Land*; and *Land Currently Used for Industrial Purposes*.

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Executive Summary

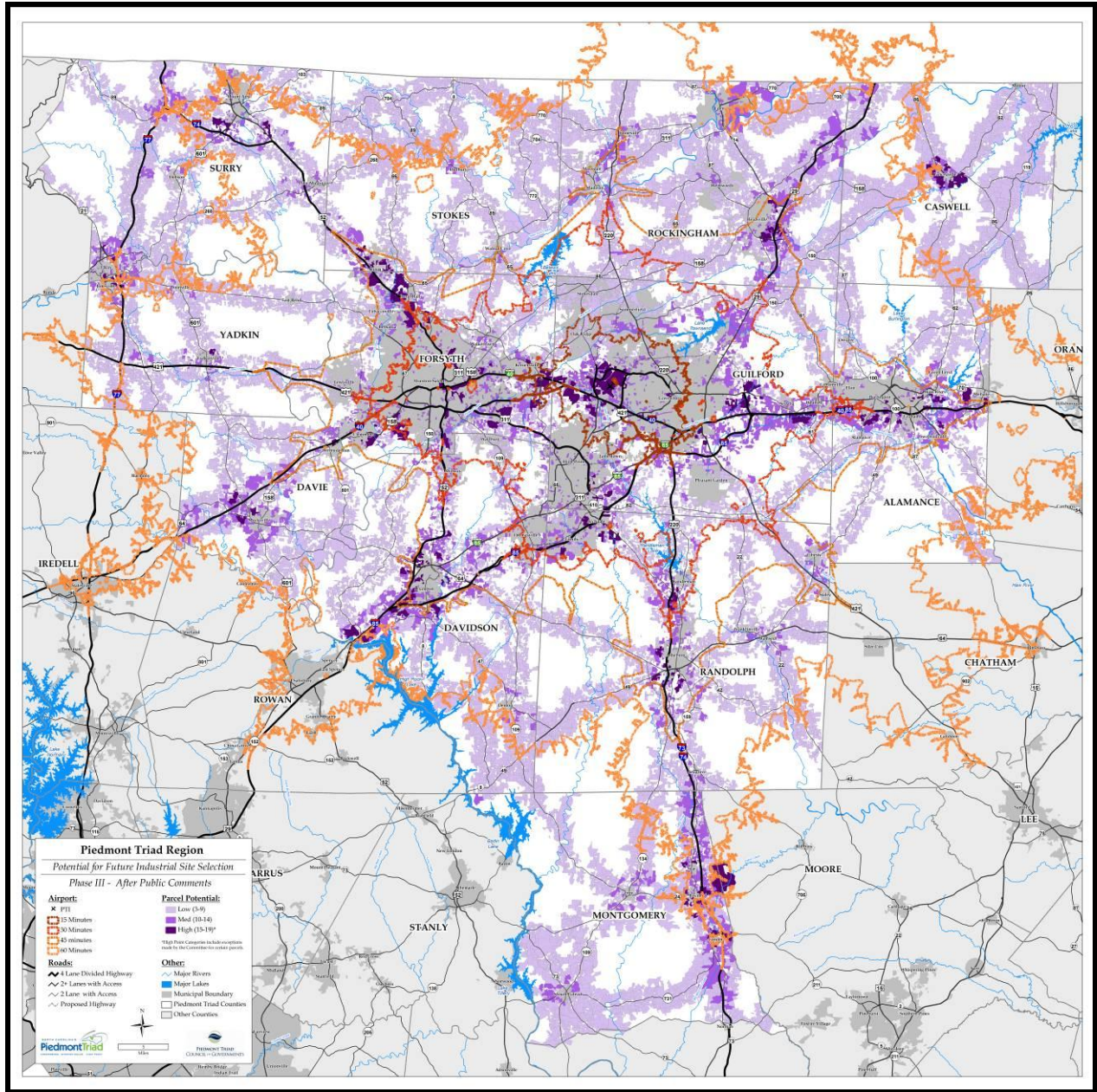
Chapter 1: Background and Purpose – The *Piedmont Triad Partnership's (PTP) Aerotropolis Leadership Board* established and charged its *Aerotropolis Land and Infrastructure Committee* with the following five tasks:

1. Identify our region's needs for adequate transportation infrastructure;
2. **a.** Identify our region's current supply of sites zoned for industrial uses;
 b. Identify our region's *future need* for sites zoned for industrial uses
3. Identify potential sites for locating an "inland port";
4. Promote fast, barrier-free land development approval processes; and
5. Develop implementation strategies to address four items above.

The Committee asked PTCOG and NWPCOG to help them address item 2.a.

Chapter 2: Process & Results – The COGs facilitated a 4-phased land supply analysis and stakeholder involvement process in partnership with the Committee. At the end of each phase, the Committee and COGs met with local economic developers and planners to review results and refine the next phase of the analysis process. Using GIS technology, county tax parcel data was analyzed to identify and characterize nearly 300 top economic development opportunities throughout the 12-county region (see TABLE 19 and MAP 11). Acreages were calculated for top sites zoned *Residential/Agricultural; Non-Residential/Non-Agricultural; and Industrial*. For top sites zoned industrial, acreages of *Undeveloped (raw) Land* and *Land Currently Used for Industrial Purposes* was calculated (see TABLE 22).

Point Value	Alamance	Caswell	Davidson	Davie	Forsyth*	Guilford*	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL	Cumulative Sum	% Cumulative in Forsyth and Guilford
19	-	-	-	-	3	1	-	-	1	-	1	-	6	6	66.67%
18	-	-	-	-	4	1	-	1	-	-	1	-	7	13	69.23%
17	3	-	-	-	8	5	-	3	1	-	-	1	21	34	64.71%
16	8	-	10	1	10	10	1	9	1	-	4	1	55	89	47.19%
15	16	-	28	-	25	35	2	18	14	-	3	8	149	238	42.86%
14	x	-	x	6	x	x	14	x	x	1	x	x	21	259	39.38%
13	x	3	x	x	1	x	x	x	x	-	x	x	4	263	39.16%
12	x	7	x	x	x	x	x	x	x	23	x	x	30	293	35.15%
11	x	x	x	x	1	x	x	x	x	x	x	x	1	294	35.37%
10*	x	x	x	x	1	1	x	x	x	x	x	x	2	296	35.81%
TOTAL	27	10	38	7	53	53	17	31	17	24	9	10	296		



MAP 11 - Phase 3: Top Potential Economic Development Sites – After Public Comments

TABLE 22 – Acreage Calculations For Top Parcels

County	Total Acreage	Acreage Zoned Residential/Agriculture	Acreage Zoned Non-Residential/Agriculture	Of Non-Residential/ Non-Agricultural Zoned Areas, Acreage Zoned Industrial Only	Of Industrial Zoned Areas, Acreage of Existing Industrial Land Use	Of Industrial Zoned Areas, Acreage of Raw Land	Of Industrial Zoned Raw Land, Usable Acreage
Alamance	2,662.00	624.91	2,037.09	1,878.94	796.94	1,082.00	892.54
Caswell	2,115.26	1,863.00	252.26	159.96	65.30	94.66	94.66
Davidson	4,421.39	2,283.52	2,137.87	1,771.88	870.20	901.68	615.92
Davie	1,027.31	755.37	271.94	161.01	106.58	54.43	48.32
Forsyth	11,127.77	4,282.22	6,845.55	6,237.71	4,407.45	1,830.27	1,491.77
Guilford	10,348.93	3,121.39	7,227.54	6,429.27	4,294.10	2,135.17	1,727.04
Montgomery	4,837.36	3,949.85	887.50	887.50	101.40	786.10	721.66
Randolph	3,036.09	1,903.33	1,132.76	993.55	445.57	547.98	491.91
Rockingham	1,161.83	424.09	737.74	719.17	213.91	505.26	444.15
Stokes	928.60	523.76	404.84	384.40	12.12	372.28	335.15
Surry	1,208.78	449.98	758.80	747.79	327.89	419.90	346.88
Yadkin	599.95	463.18	136.76	136.76	99.84	36.93	26.16
TOTAL	43,475.27	20,644.59	22,830.67	20,507.94	11,741.28	8,766.66	7,236.17

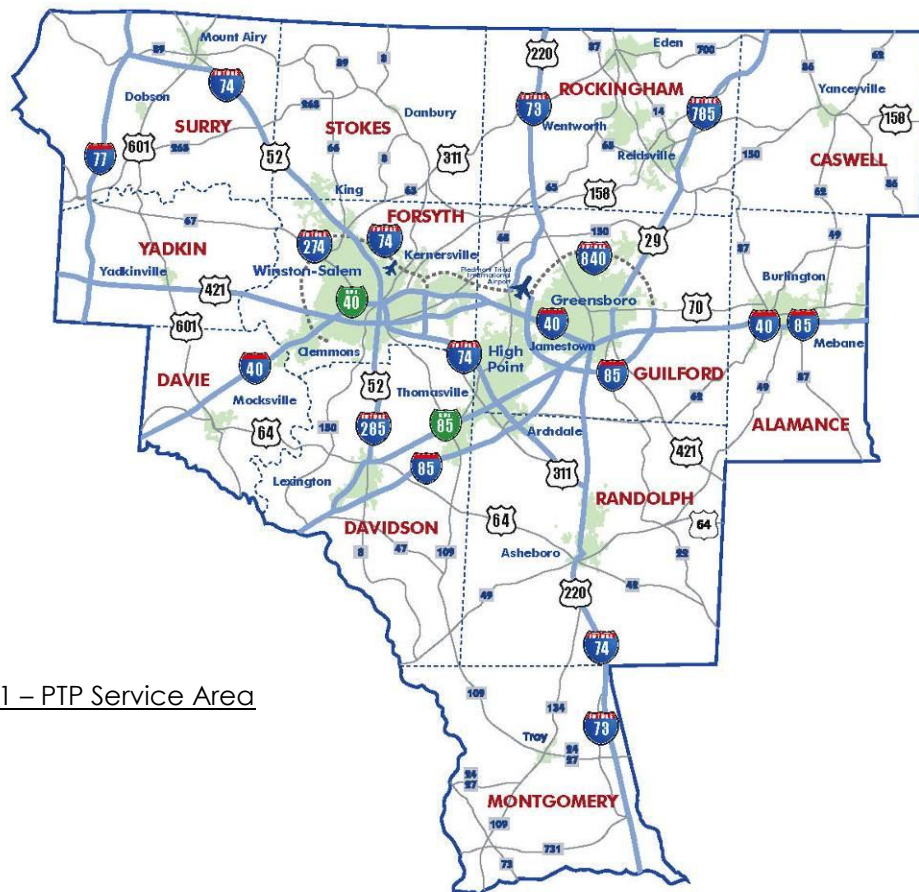


Chapter 1: Background and Purpose

The Piedmont Triad Partnership's (PTP) Aerotropolis Leadership Board established the Aerotropolis Land and Infrastructure Committee with the following charge for the PTP 12-county service area:

1. Identify our region's needs for adequate transportation infrastructure;
2. **a.** Identify our region's *current supply* of sites zoned for industrial uses;
b. Identify our region's *future need* for sites zoned for industrial uses;
3. Identify potential sites for locating an "inland port";
4. Promote fast, barrier-free land development approval processes; and
5. Develop implementation strategies to address all the items above.

The Land and Infrastructure Committee requested the *Piedmont Triad Council of Governments* (PTCOG) and *Northwest Piedmont Council of Governments* (NWPCOG) to help address item 2.a. above. In December 2009 the PTP approved the COG's proposal to use current zoning and other key factors to identify and characterize current and future economic development opportunities throughout the 12-county PTP service area (see MAP 1). This study was conducted in four phases to maximize opportunities for feedback from Committee members and local economic developers and planners throughout the analysis process (see TABLE 1).



MAP 1 – PTP Service Area

TABLE 1 – Procedures for Each Phase of the Land Supply Analysis

Phase	Analysis Categories	Timeframe
Phase 1	<ul style="list-style-type: none"> • Sort tax parcels by existing land uses • Sort tax parcels by size in acres • Sort tax parcels with transportation access (1 mile buffers from Interstate, US, NC, and major proposed highways) • Remove environmental constraints (50-ft stream buffers, 100-year floodplains, wetlands, hydric soils, steep slopes (≥ 15%), natural heritage inventory sites, and critical portions of the WSWS) • Sort parcels by 10, 20, and 30 mile radii from PTI Airport 	JAN – APR 2010
Phase 2	<ul style="list-style-type: none"> • <u>Phase 1 Criteria +</u> • Use travel times instead of mileage from PTI Airport • Remove steep slopes until Phase 3 • Add 1.5 mile buffer around Interstate Interchanges; • ID interstates, major roads with >2-lanes and 2-lane major roads • ID existing land uses of high-priority parcels from Phase 1 • Add rail lines (freight & passenger); • Add water & sewer service areas • Add existing large buildings (≥ 50,000 square feet) • Add available sites • Draft report for planners, realtors & economic developers to review & refine 	APR – JUL 2010
Phase 3	<ul style="list-style-type: none"> • <u>Phase 1 and 2 Criteria +</u> • Adopted Land Use Plan designations; • Adopted Zoning Map designations; • Adopted Thoroughfare & Comprehensive Transportation Plans; • Probable future water & sewer extension areas • Input from local economic developers to identify and refine: <ul style="list-style-type: none"> ○ Industrial & Commercial Buildings ≥50,000 square feet ○ Large parcels or assemblages of undeveloped and under-developed parcels with common &/or willing owners 	JUL – SEP 2010
Phase 4	<ul style="list-style-type: none"> • <u>Phase 1 and 2 Criteria +</u> • Adopted Thoroughfare & Comprehensive Transportation Plans; • Probable future water & sewer extension areas; • Input from local economic developers to identify and refine: <ul style="list-style-type: none"> ○ Industrial & Commercial Buildings ≥50,000 square feet ○ Large parcels or assemblages of undeveloped and under-developed parcels with common &/or willing owners • Calculated acreage of top 300 parcels zoned for agricultural/ residential uses, non-agriculture/non-residential uses, and industrial uses. • Calculated acreage of top parcels zoned for industrial uses currently used for industrial purposes and currently undeveloped (raw) land. 	SEP - DEC 2010

Chapter 2: Process and Results

PTCOG and NWPCOG facilitated a 4-phased land supply analysis and stakeholder involvement process in partnership with the Aerotropolis Land and Infrastructure Committee. Using GIS technology, county tax parcel data was analyzed to identify and characterize top economic development opportunities within the Partnership’s 12-county service area. At the end of each phase, Committee members and COG staff met with local economic developers and planners to review results and refine the next phase of the analysis process as outlined below:

Phase 1 – Analysis Procedures and Preliminary Results

To compile the most recent County tax parcel and attribute data from the 12-county study area, PTCOG contacted the planning and GIS departments from 53 PTCOG jurisdictions (7 counties / 46 municipalities) and NWPCOG contacted its 26 jurisdictions (5 counties and 21 municipalities). Rules were established for deriving existing land use designations from each set of county tax parcel data. These rules were then used to sort all parcels in the 12-county region into a uniform set of existing land use designations (see TABLE 2).

TABLE 2 – Existing Land Use Designations
Agricultural
Agricultural/Residential
Commercial
Industrial
Institutional
Mobile & Manufactured Homes
Multi-Family Residential
Office
Recreation/Open Space
Single-Family Residential
Utility
Vacant
Water
Unknown

Agricultural, agricultural/residential, vacant, and unknown parcels were grouped into a single land use category designated “undeveloped or under-developed” and potentially available as a desirable location for future development.

Only tax parcels ≥ 10 acres in size were selected for input into the study analysis. This step eliminated small residential plots or other small acreage parcels considered less suitable for large economic development sites. Tax parcels located within a 1-mile buffer of existing or proposed Interstate, US, and/or NC highways, to identify larger parcels with suitable transportation access. These parcels were ranked based on their proximity to each type of highway (see TABLE 3). Parcels near Interstate highways received 3 points; parcels near US highways received 2 points; parcels near NC highways received 1 point; and parcels near major proposed highways received 1 point. Some parcels could potentially be located within 1 mile from all of these types of highways and could therefore receive up to 7 points based solely on transportation access.

TABLE 3 – Transportation Rank	
Highway Type	Rank Value
Interstate	3
US	2
NC	1
Proposed	1

A set of seven environmental constraints (see TABLE 4) were then used to filter out the unusable portions of each parcel. Environmentally constrained acreages were calculated for each parcel in the analysis and subtracted from the total parcel acreage, leaving the amount of usable acres for each parcel. The parcels were then sorted based on their usable acres and given a rank from 1 to 4 (see TABLE 5). Any parcel falling below the threshold of 10 usable acres was then removed from the analysis, leaving 28,102 parcels in the study.

TABLE 4 – Phase 1 Environmental Constraints	
Environmental Constraint	Source
Perennial Streams (50-foot buffer)	CGIA
100-Year Floodplains	CGIA
Wetlands	CGIA
Hydric Soils (wet for a majority of the year)	USDA
Steep Slopes ($\geq 15\%$)	NCDOT LiDAR elevation data
Natural Heritage Inventory Sites	CGIA
Critical Portion of Water Supply Watersheds (WSWS)	CGIA

TABLE 5 – Phase 1 Usable Acres Rank	
Usable Acres	Rank Value
10 - 50 Acres	1
50 - 100 Acres	2
100 - 200 Acres	3
≥ 200 Acres	4

To calculate the final Phase 1 parcel rank value, the sums of the transportation rank values were added to the usable acre rank values. The highest potential final rank value was 11 points (e.g. a parcel that is within 1 mile of all four types of highways and has at least 200 usable acres). The final rank values ranged from a low of 2 to a high of 10 points (see TABLE 6).

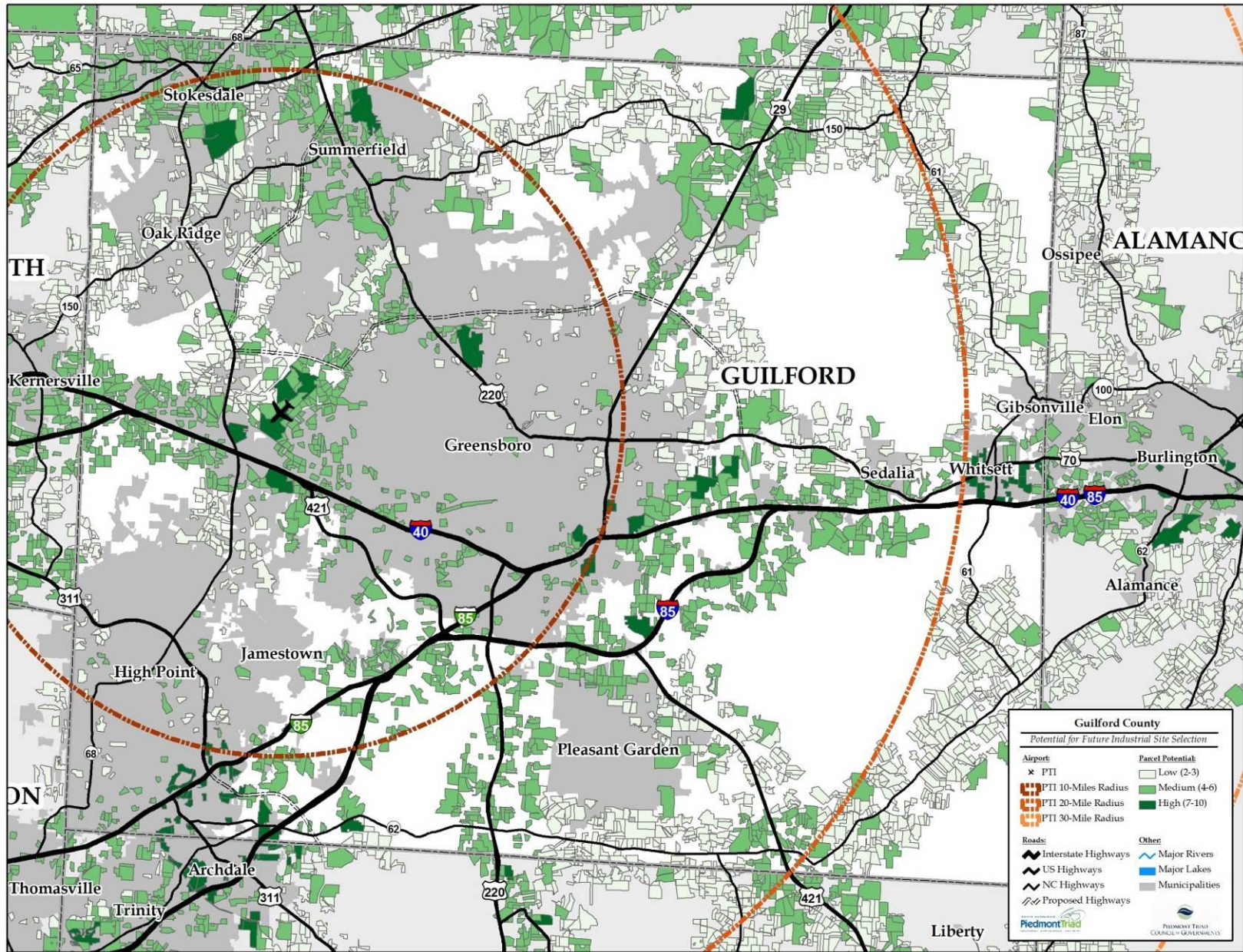
Points	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	Totals
10	2	0	1	1	1	0	3	3	0	0	0	0	11
9	1	0	3	4	1	2	7	5	0	0	2	1	26
8	23	0	6	14	9	17	37	28	0	0	3	1	138
7	27	4	43	75	91	46	106	136	3	3	49	19	602
6	51	26	136	244	88	131	303	225	16	7	139	204	1,570
5	162	93	186	73	221	213	103	165	145	18	146	45	1,570
4	161	298	450	267	326	981	248	423	693	139	650	273	4,909
3	241	473	527	493	585	574	375	889	996	283	648	865	6,949
2	1,468	898	1,670	353	480	1,119	1,081	1,273	1,286	1,563	725	411	12,327
Sum	2,136	1,792	3,022	1,524	1,802	3,083	2,263	3,147	3,139	2,013	2,362	1,819	28,102

Final Phase 1 parcel rank values were sorted into three parcel rank categories: “High” (7-10 points); “Medium” (4-6 points); and “Low” (2-3 points) (see TABLE 7). High priority parcels were sorted into three categories of “Distance from the PTI Airport”: 10 miles; 20 miles, and 30+ miles (see TABLE 8 and MAP 2).

Potential Range:	High (7-10)	Medium (4-6)	Low (2-3)	Sums
Alamance	53	374	1,709	2,136
Caswell	4	417	1,371	1,792
Davidson	53	772	2,197	3,022
Davie	94	584	846	1,524
Forsyth	102	635	1,065	1,802
Guilford	65	1,325	1,693	3,083
Montgomery	153	654	1,456	2,263
Randolph	172	813	2,162	3,147
Rockingham	3	854	2,282	3,139
Stokes	3	164	1,846	2,013
Surry	54	935	1,373	2,362
Yadkin	21	522	1,276	1,819
Totals	777	8,049	19,276	28,102

	10-Mile	20-Mile	30+ Mile	Sums
Alamance	0	0	30	30
Caswell	0	0	0	0
Davidson	0	1	34	35
Davie	0	0	38	38
Forsyth	2	69	31	102
Guilford	11	39	15	65
Montgomery	0	0	0	0
Randolph	0	22	33	55
Rockingham	0	1	2	3
Stokes	0	3	0	3
Surry	0	0	0	0
Yadkin	0	0	0	0
Totals	13	135	183	331

Map 2 – Example of Phase 1 Results in Guilford County



Phase 2 – Analysis Procedures and Preliminary Results

As in Phase 1, tax parcels considered too small for economic development purposes (≤ 10 acres) were eliminated from the analysis. Based on input from the *Land Use and Infrastructure Committee*, the “Steep Slopes” ($\geq 15\%$) criterion was dropped from the set of environmental constraints used to calculate the usable acres ranking for each parcel (see TABLE 5 above). A revised set of transportation access criteria (see TABLE 9) was then utilized to generate preliminary parcel rankings of high, medium, low and unranked (see TABLE 10).

TABLE 9 – Revised Transportation Ranking Criteria	
Transportation Access Criteria	Point Value
Within 1.5 miles of a 4-Lane Divided Highway Interchange	4
Within 1.0 mile of a 4-Lane Divided Highway	3
Within 1.0 mile of a >2-Lane Road with Access	2
Within 1.0 mile of a 2-Lane Road with Access	1
Within 1.0 mile of a proposed (future) thoroughfare	1

TABLE 10 – Preliminary Phase 2 Parcel Ranking Results		
Parcel Priority	Points Received	Number of Parcels
High	8 – 11 Points	1,051
Medium	5 – 7 Points	7,952
Low	3 – 4 Points	9,110
Not Ranked	0 – 2 Points	18,062

These high-ranking parcels (receiving 8-11 points) were sorted to provide GIS data layers for use by PTP, local economic developers and planners, including:

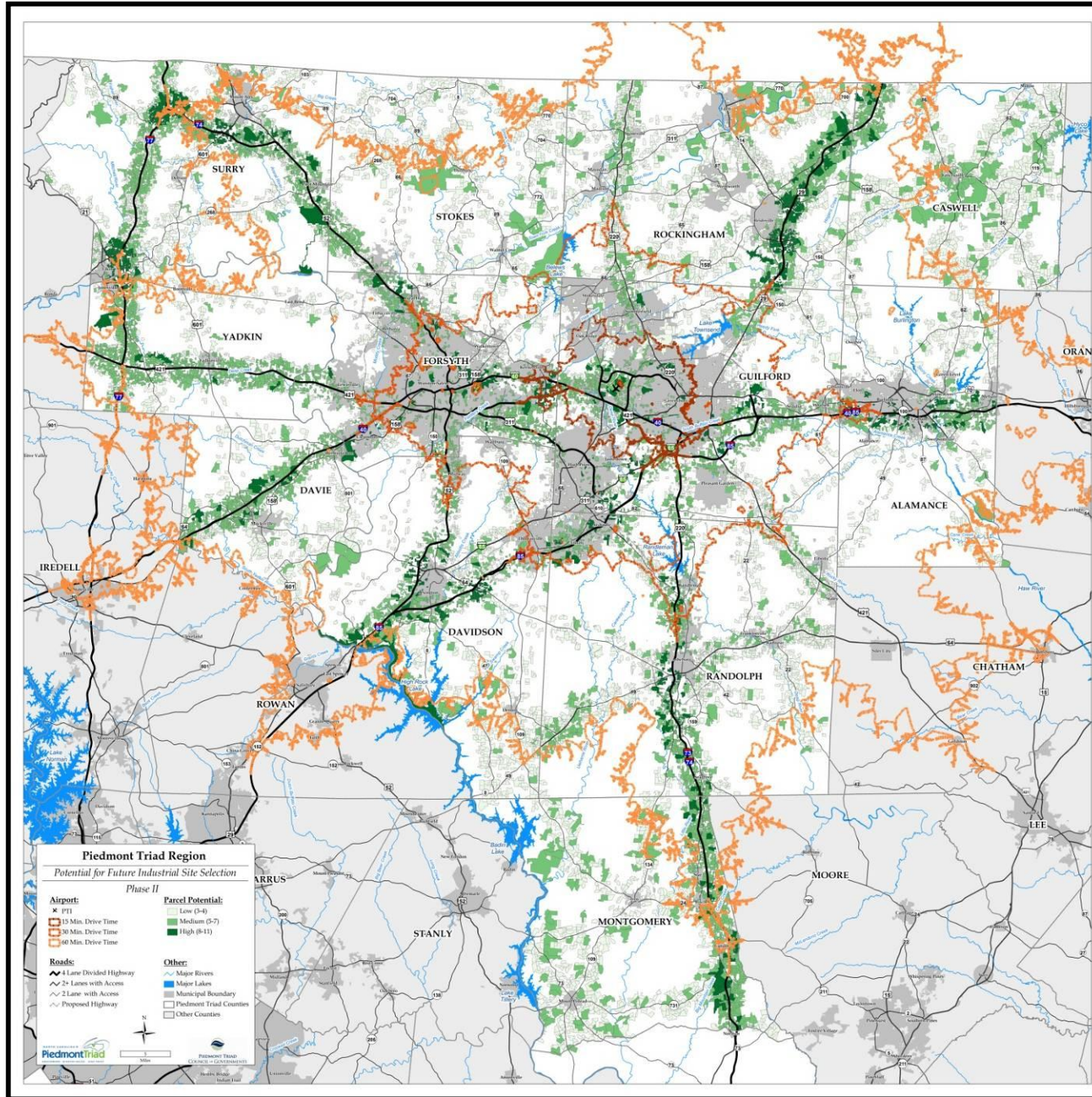
- a. Existing land uses;
- b. Travel times from PTI Airport (15-, 30- and 60-minutes);
- c. Within 1 mile of an existing rail line (freight &/or passenger);
- d. Within an existing &/or planned water service area;
- e. Within an existing &/or planned sewer service area;
- f. Within future water & sewer service areas (e.g. future annexation area);
- g. Existing industrial &/or commercial buildings $\geq 50,000$ SF – available for use;
- h. Existing industrial &/or commercial buildings $\geq 50,000$ SF – currently occupied.

The distribution of parcel point values, parcel point ranges and drive times from the PTI Airport are summarized below by county (see TABLE 11, 12 and 13 and MAP 3).

TABLE 11 - Parcel Point Value Distribution													
Value	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL
11	1	0	2	0	1	1	0	2	3	0	2	0	12
10	1	0	3	0	1	6	0	2	5	0	10	0	28
9	9	0	8	2	11	24	8	19	27	0	29	7	144
8	96	7	115	13	111	76	30	49	143	0	209	29	878
7	70	18	106	36	228	301	89	138	85	2	150	32	1,255
6	100	61	225	278	314	293	381	379	192	19	214	253	2,709
5	106	167	388	153	573	617	226	303	194	169	515	577	3,988
4	162	310	445	126	171	410	231	537	574	181	762	294	4,203
3	231	400	463	140	382	510	330	795	736	450	341	129	4,907
2	1,456	1,246	2,040	1,023	823	1,314	1,211	1,492	2,066	2,701	1,655	1,035	18,062
TOTAL	2,232	2,209	3,795	1,771	2,615	3,552	2,506	3,716	4,025	3,522	3,887	2,356	36,186

TABLE 12 - Parcel Range Distributions													
Ranking	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL
High (8-11)	105	7	124	15	124	107	38	72	174	0	249	36	1,051
Med (5-7)	276	246	719	467	1,115	1,211	696	820	471	190	879	862	7,952
Low (3-4)	393	710	908	266	553	920	561	1,332	1,310	631	1,103	423	9,110
TOTAL	776	963	1,755	748	1,792	2,238	1,295	2,224	1,959	821	2,232	1,321	18,113

TABLE 13 - High Priority Parcels By Drive Time From PTI Airport													
Drive Times	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	Total
15 min	0	0	0	0	57	29	0	0	0	0	0	0	86
30 min	17	0	1	0	50	77	0	27	3	0	0	0	175
60 min	90	7	127	15	17	1	18	45	175	0	118	35	648
60 min +	0	0	0	0	0	0	20	0		0	132	1	153
TOTAL	107	7	128	15	124	107	38	72	178	0	250	36	1,062



MAP 3 – Phase 2 Parcel Ranking Results

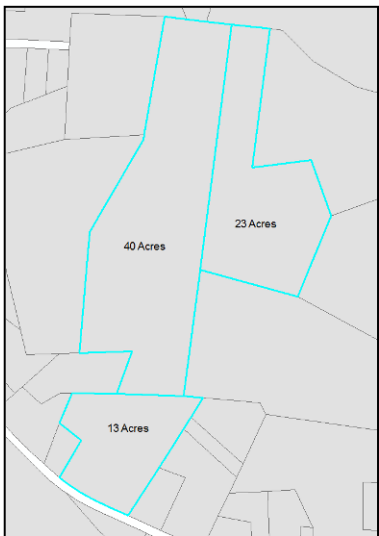
Phase 3 – Analysis Procedures and Preliminary Results

PTCOG facilitated a region wide workshop to conclude Phase 2 and kick-off Phase 3. Over 30 local economic developers and planners reviewed Phase 2 analysis procedures & preliminary results. Participants provided recommendations for refining the point system and analysis categories and for maximizing the value and use of final study results. Workshop participants and other local stakeholders unable to attend were invited to provide the following additional information for inclusion in the Phase 3 analysis:

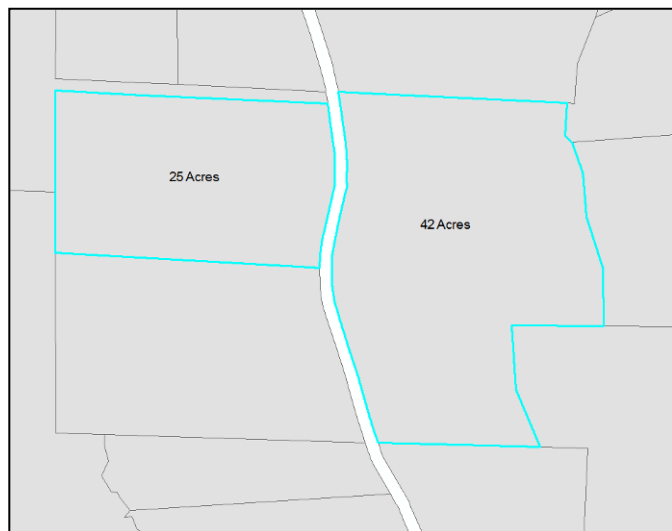
- Parcel Clusters with Interested Land Owner(s)
- Existing Economic Development Sites
- Planned Economic Development Sites
- Other Economic Development Points of Interest

Phase 3 procedures were similar to those used in Phase 1 and 2 with the exception of the following modifications:

Merged Parcel Clusters - Adjacent parcels with the same owner were merged into clusters to identify large potential economic development sites overlooked during the analysis of individual parcels. Clusters included parcels directly next to each other as shown below on the left (see MAP 4) and parcels across a right-of-way with no other parcels in between as shown below on the right (see MAP 5). In both examples, the parcels individually would fall into the 10-50 acre category. However, when these parcels are merged, they fall into the next highest category and earn an additional point in the ranking system

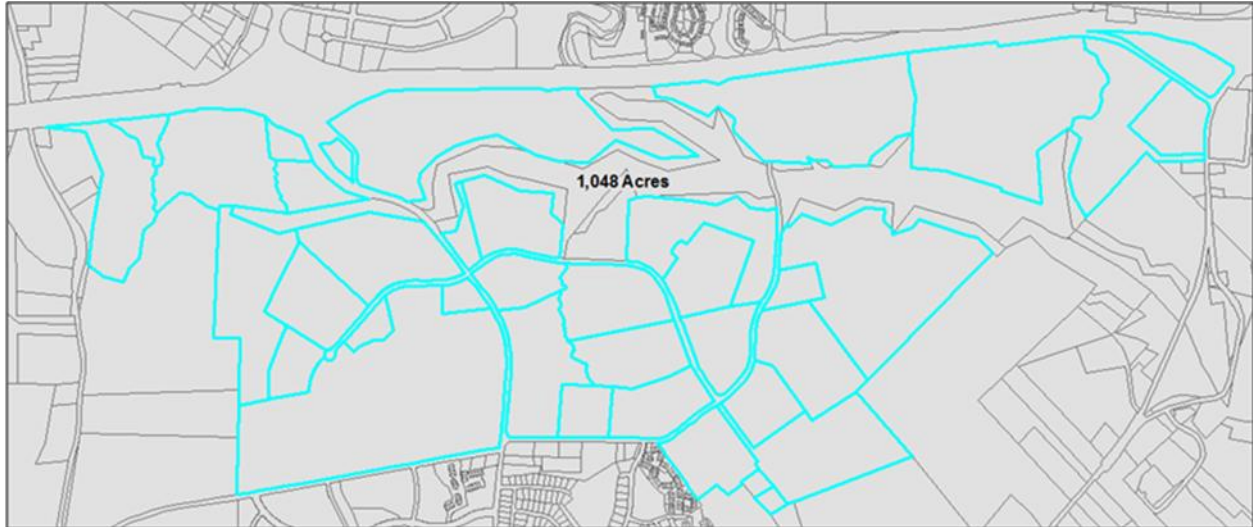


MAP 4 – Adjacent: 76-Acre Cluster



MAP 5 – Across R.O.W.: 67-Acre Cluster

Parcels within existing industrial parks were also clustered because they are usually managed as one entity regardless of who owns each parcel. The example below shows the *Rock Creek Industrial Center* in Guilford County which, when merged, is over 1,000 acres in size. Most existing industrial parks did not receive top ranking until their parcels were clustered.



MAP 6 - Industrial Park (with parcels not necessarily having the same owner)

Once the size of all parcels and parcel clusters was determined, portions with environmental constraints limiting industrial development were removed to determine the usable or developable acreage of top parcels. The same environmental constraints were used as in Phase 2, with one exception. In the first two phases, the critical portions of all four levels of water supply watersheds (WSWS) were removed. Only the critical portions of level I and II watersheds were removed in the Phase 3 analysis, because more development is allowed in the critical portions of level III and IV WSWSs. As in Phase 1 and 2, after environmentally constrained areas were removed from the parcels, the usable acreage was calculated to rank parcels (see TABLE 5). Parcels with the most usable acreage received the most points.

The revised set of transportation access criteria used in Phase 2 (see TABLE 9) was utilized to generate preliminary parcel rankings. Parcels within 1.5 miles of a multi-lane divided highway interchange received 4 points. Parcels not within 1.5 miles of an interchange, but within 1 mile of the highway itself received 3 points. Parcels within 1 mile of a multi-lane highway with uncontrolled access received 2 points. Two-lane highways without controlled access received 1 point and parcels within a mile of a major *proposed* highway received 1 point. A parcel could receive a total of 8 points if it were near all of these types of highways and within 1.5 miles of a controlled access highway interchange. As in previous phases, only parcels ≥ 10 acres in size were included in this analysis.

The following “access to infrastructure” factors were applied to the preliminary Phase 3 parcel rankings:

- Within 1 mile of an existing active rail corridor (1 point);
- Has an existing building ≥50,000 sq ft (1 point);
- Has an available existing building ≥50,000 sq ft (2 point)
- Vacant or Agricultural Uses (1 point)
- In a public water service area (2 points)
- In a *future* water service area (1 point)
- In a public sewer service area (3 points)
- In a *future* sewer service area (1 point)

When all three groups of analysis factors were combined (see TABLE 14) the highest possible point value a parcel could receive was 21. The highest score received by any parcel or parcel cluster was 19 points.

TABLE 14 - Final Phase 3 Point Ranking System		
Category	Factors	Point Value
Usable Acres	200 +	4
	100-200	3
	50-100	2
	10-50	1
Highways System	Interchange Node of 4 Lane Divided Hwy (1.5 mile buffer)	4
	4 Lane Divided Hwy (Controlled Access) (1 mile buffer)	3
	2+ Lanes w/ Access (1 mile buffer)	2
	2 Lanes w/ Access (1 mile buffer)	1
	Proposed (1 mile buffer)	1
Railroad System	Existing Active Railroads (1 mile buffer)	1
≥50,000 Sq. Ft. Buildings	Available	2
	Occupied	1
Undeveloped Land	Vacant/Agricultural Space	1
Water Service Area	Current	2
	Future	1
Sewer Service Area	Current	3
	Future	1
Highest Possible Point Value		21

Points based on “drive times from the PTI Airport” (see TABLE 15) were not used to rank parcels, because they skewed analysis results too drastically. For example, when drive time points were included, nearly 80% of the top 200 parcels receiving ≥18 points were located in Forsyth and Guilford County (see TABLE 16). A handful of top parcels were in Alamance, Davidson, Randolph, Rockingham, Surry & Yadkin County and none were in Caswell, Davie, Montgomery or Stokes County.

TABLE 15 – Airport Drive Time Ranking Criteria	
Drive Time From PTI Airport	Points
Up to 15 minutes	4 points
Up to 30 minutes	3 points
Up to 45 minutes	2 points
Up to 60 minutes	1 point
60+ minutes	0 points

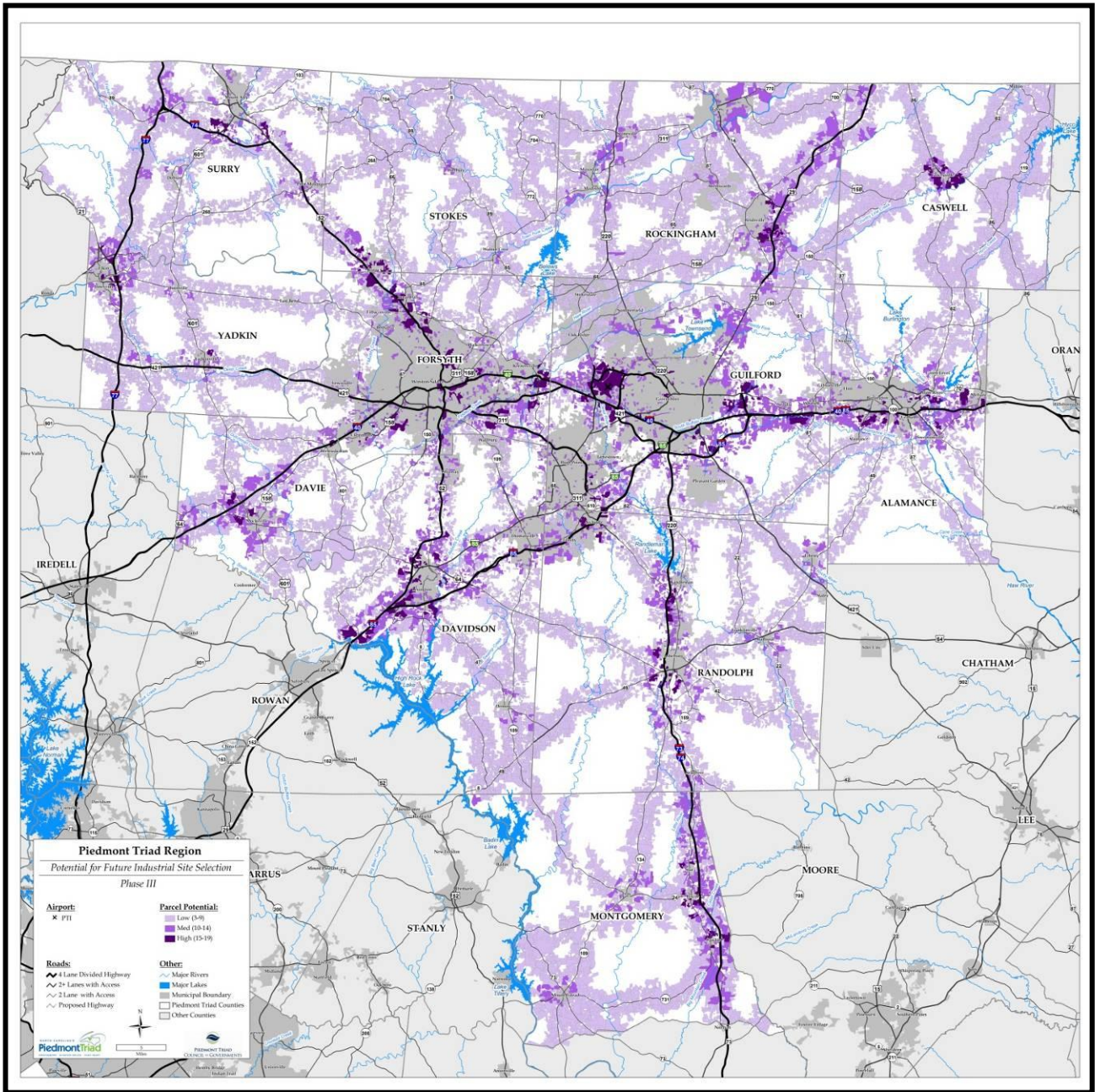
TABLE 16 - Distribution with Drive Times Included															
Point Value With DT	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL	Cumulative Sum	%Cumulative in Forsyth & Guilford
23	-	-	-	-	2	1	-	-	-	-	-	-	3	3	100.00%
22	-	-	-	-	1	1	-	-	-	-	-	-	2	5	100.00%
21	-	-	-	-	3	2	-	1	1	-	-	-	7	12	83.33%
20	-	-	-	-	4	7	-	1	-	-	1	-	13	25	84.00%
19	4	-	1	-	16	15	-	8	1	-	1	-	46	71	73.24%
18	7	-	7	-	21	89	-	7	1	-	-	1	133	204	79.41%
17	28	-	29	1	93	151	1	42	14	-	3	1	363	567	71.60%
16	61	-	59	1	85	230	2	56	16	1	3	8	522	1,089	66.21%
15	63	-	96	5	169	186	13	75	20	-	1	5	633	1,722	62.49%
14	63	-	85	7	141	227	39	59	32	22	73	9	757	2,479	58.25%
13	68	5	150	38	149	253	19	64	47	23	47	30	893	3,372	54.74%
12	73	8	215	34	188	197	39	128	121	15	49	15	1,082	4,454	50.09%
11	55	26	185	83	182	179	72	168	117	23	107	26	1,223	5,677	45.66%
10	67	36	221	189	136	166	155	205	150	53	203	44	1,625	7,302	39.63%
9	65	57	285	130	165	160	184	226	308	73	194	85	1,932	9,234	34.86%
8	47	85	352	125	309	201	143	289	296	83	251	242	2,423	11,657	31.99%
7	89	59	594	161	255	317	171	331	430	87	236	397	3,127	14,784	29.09%
6	130	133	808	356	212	396	275	491	682	206	314	267	4,270	19,054	25.76%
5	236	293	323	198	70	346	327	520	547	391	360	211	3,822	22,876	23.28%
4	630	519	67	193	49	131	227	605	736	1094	453	470	5,174	28,050	19.63%
3	300	633	14	74	3	15	249	320	114	805	580	164	3,271	31,321	17.63%
2	8	43	-	-	-	-	9	23	-	138	544	5	770	32,091	17.21%
TOTAL	1,994	1,897	3,491	1,595	2,253	3,270	1,925	3,619	3,633	3,014	3,420	1,980	32,091		

Using 15 points as the minimum threshold for top ranking parcels, 231 top parcels were identified. By not including drive time points, only 96 top parcels (42%) were located in Forsyth and Guilford County. However, Caswell and Stokes County still had no top parcels and Davie and Montgomery County were weakly represented (see TABLE 17).

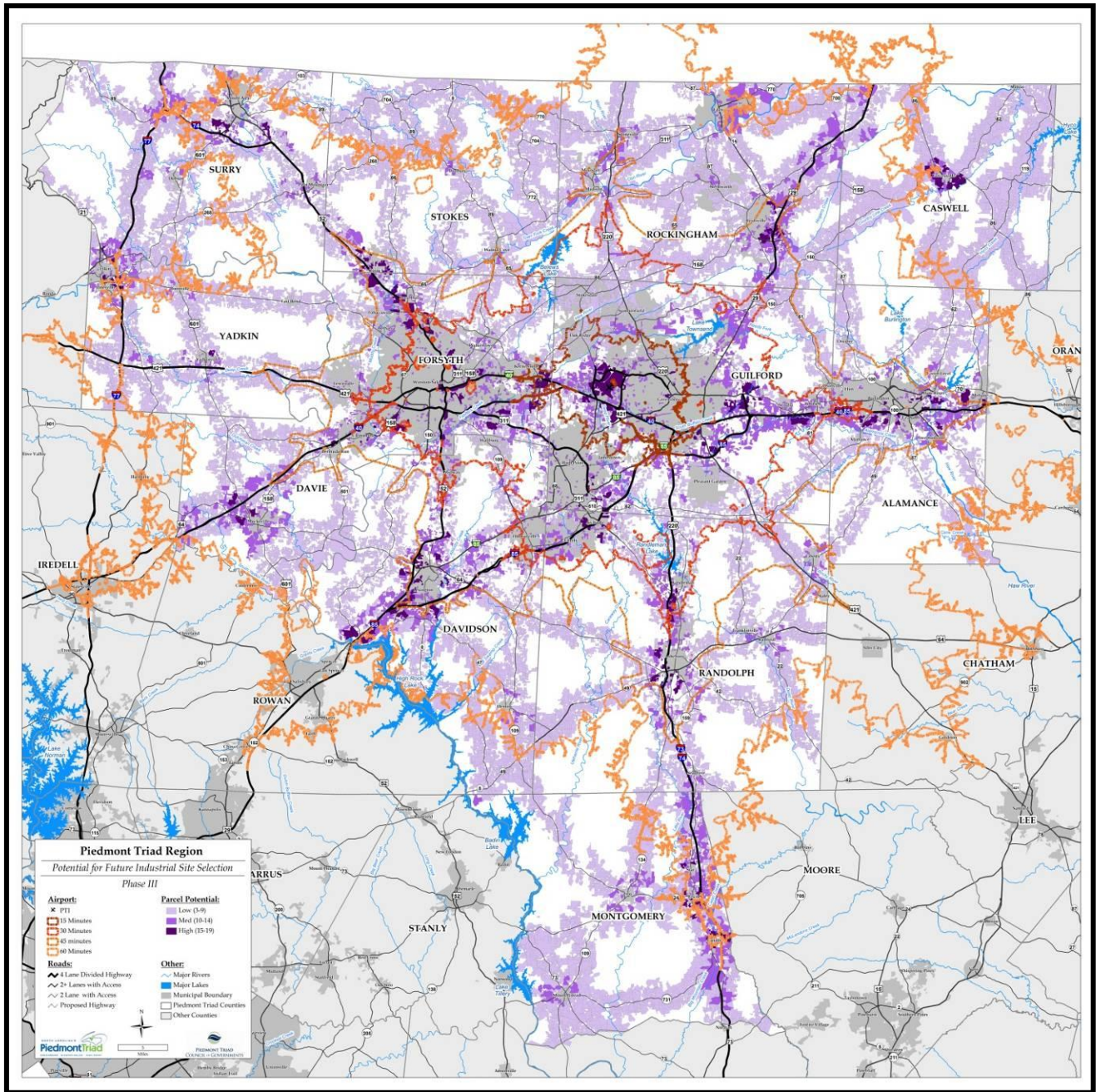
Point Value	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL	Cumulative Sum
19	-	-	-	-	3	1	-	-	1	-	1	-	6	6
18	-	-	-	-	3	1	-	1	-	-	1	-	6	12
17	3	-	-	-	4	6	-	3	1	-	-	1	18	30
16	8	-	10	1	10	9	1	9	1	-	4	1	54	84
15	16	-	28	-	27	32	2	17	14	-	3	8	147	231
TOTAL	27	0	38	1	47	49	3	30	17	0	9	10	231	

The minimum point threshold was adjusted slightly to better represent each county in the study. The jagged red line in the table below (see TABLE 18) represents this adjusted threshold. This adjustment yielded 284 top ranked parcels with the best potential for future industrial development (see MAP 7 & MAP 8).

Point Value	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL	Cumulative Sum
19	-	-	-	-	3	1	-	-	1	-	1	-	6	6
18	-	-	-	-	3	1	-	1	-	-	1	-	6	12
17	3	-	-	-	4	6	-	3	1	-	-	1	18	30
16	8	-	10	1	10	9	1	9	1	-	4	1	54	84
15	16	-	28	-	27	32	2	17	14	-	3	8	147	231
14	x	-	x	6	x	x	13	x	x	1	x	x	20	251
13	x	3	x	x	x	x	x	x	x	-	x	x	3	254
12	x	7	x	x	x	x	x	x	x	23	x	x	30	284
TOTAL	27	10	38	7	47	49	16	30	17	24	9	10	284	



MAP 7 – Phase 3: Top Potential Economic Development Sites



MAP 8 - Phase 3: Top Potential Economic Development Sites – with Drive Time Boundaries Displayed

Phase 3 – Potential Land Supply Database Applications

To maximize the usefulness of the regional GIS database developed for this study, the following attributes were assigned to each of the 284 top ranking parcels:

- Access to future transportation improvements as identified in adopted comprehensive transportation plans or thoroughfare plans;
- Future land use designations from adopted land use plans;
- Current zoning designations from adopted zoning maps; and
- Existing land uses.

These attributes were not used to rank top parcels. However, in the future this information may help local economic developers fine-tune their search for the most appropriate sites to match client needs. For example, six existing land use categories were identified for top parcels (see TABLE 20):

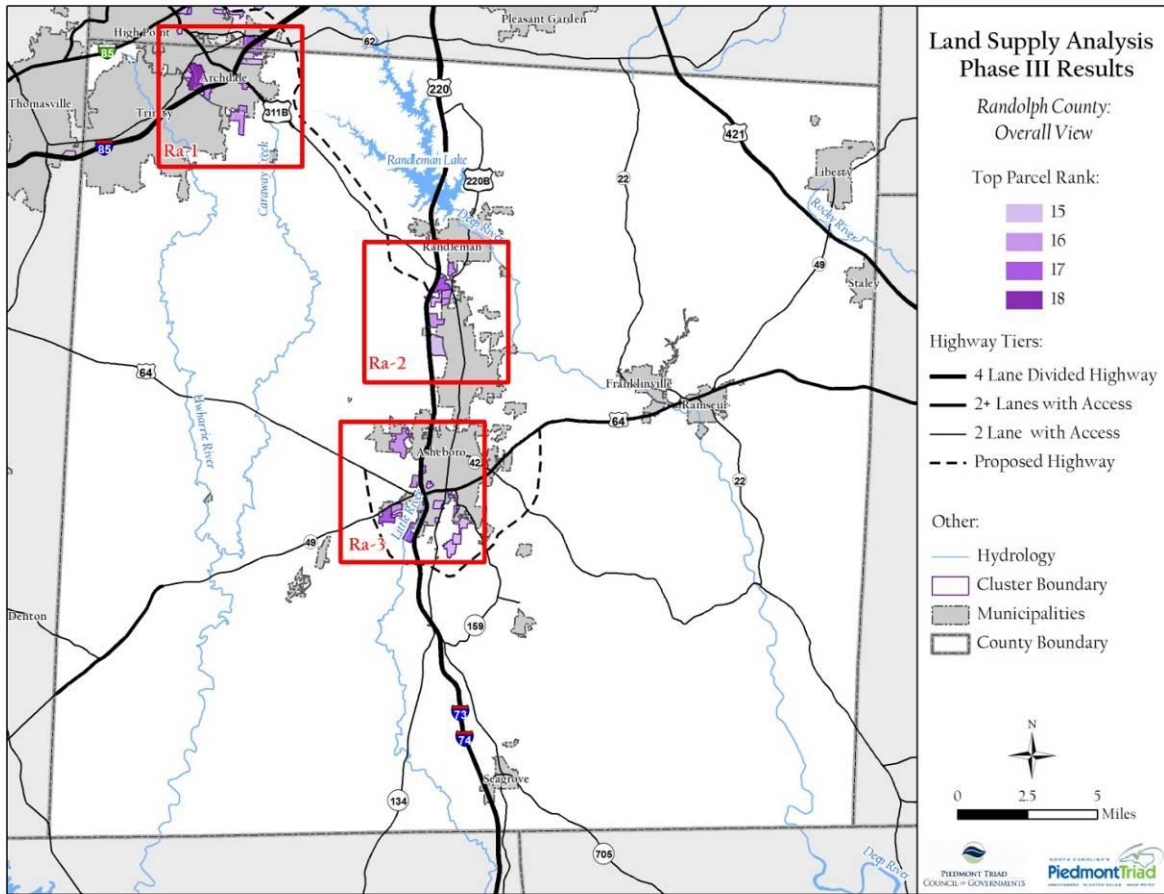
- Completely undeveloped;
- Completely used for industrial purposes;
- A mix of industrial uses and undeveloped areas;
- A mix of undeveloped areas and uses other than industrial uses;
- A mix of industrial uses and uses other than undeveloped; and
- Uses other than undeveloped or industrial.

About 42% of the top 284 parcels are completely undeveloped, providing multiple potential opportunities for future industrial development. Nearly a quarter of the top parcels are currently being used for industrial purposes, including industrial parks. Some industrial parks are a mix of undeveloped and industrial uses.

TABLE 20 – Distribution of Existing Uses For Top Parcels

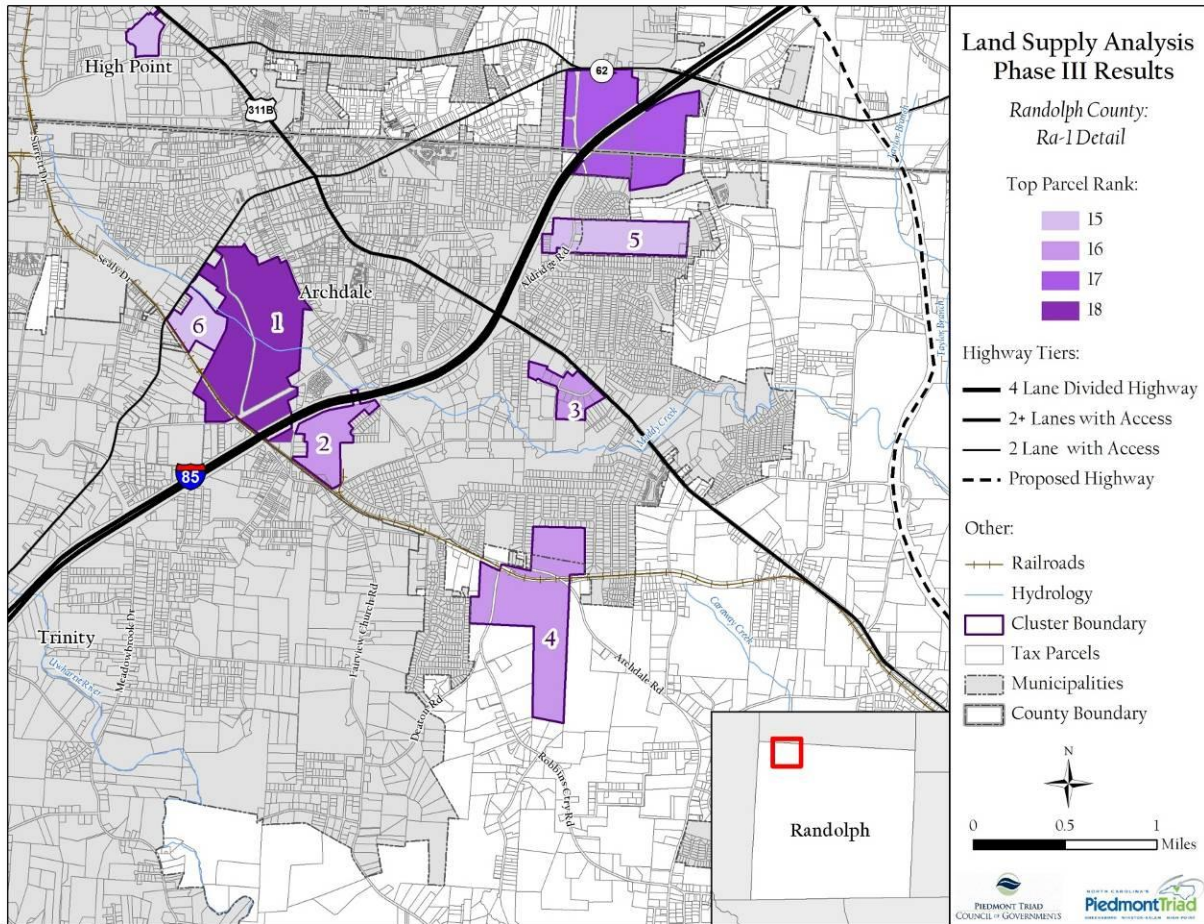
Land Use	Alamance	Caswell	Davidson	Davie	Forsyth	Guilford	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL	Percent
Undeveloped	13	7	23	4	12	14	5	10	6	16	1	8	119	41.90%
Industrial	6	-	7	-	15	12	2	8	6	1	5	2	64	22.54%
Undeveloped & Industrial Mix	4	1	2	1	6	8	-	5	2	-	3	-	32	11.27%
Undeveloped & Non-Industrial Mix	4	1	3	2	10	5	1	4	3	5	-	-	38	13.38%
Industrial Mix	-	-	1	-	1	2	1	1	-	-	-	-	6	2.11%
Other	-	1	2	-	3	8	7	2	-	2	-	-	25	8.80%
TOTAL	27	10	38	7	47	49	16	30	17	24	9	10	284	

The robust GIS database developed for this project can be used to generate a wide range of customized products to support economic development efforts throughout the region. In the example below, top Randolph County parcels were grouped into three distinct clusters (see MAP 9) and displayed on sub-maps to show greater detail (see MAP 10). Whether in a hard-copy report or within a web-based application, each sub-map could also be accompanied by a table of detailed parcel attributes to further support economic developers and companies searching for appropriate sites (see TABLE 21).



MAP 9 – Three Clusters of Top Parcels in Randolph County

Below is an example sub-map ("Ra-1 Detail") showing each top parcel with a unique parcel identification number. Parcel Ra-1-1 is the top parcel in Randolph County. It contains over 200 usable acres and is located near an I-85 interchange, near NC-62, near US-311 and near a railroad. The site has water and sewer, is undeveloped and has no existing large buildings – giving it a score of 18 points.



MAP 10 – Example Sub-Map of Top Parcels in Randolph County

Parcel Ra-1-1 is located in Archdale, and designated in the City's land use plan to be a mix of traditional neighborhood development and light industrial. It is a single parcel, not a cluster. Portions of the site are located in a level III and level IV WSWS. Most of the site is zoned for medium density residential (R-15) and the remainder is zoned for heavy and light industrial (M-2 and M-1) and high density multi-family residential (R-40). The transportation plan indicates the site has access to an existing major freeway (I-85) and a major thoroughfare (NC62) in need of improvements.

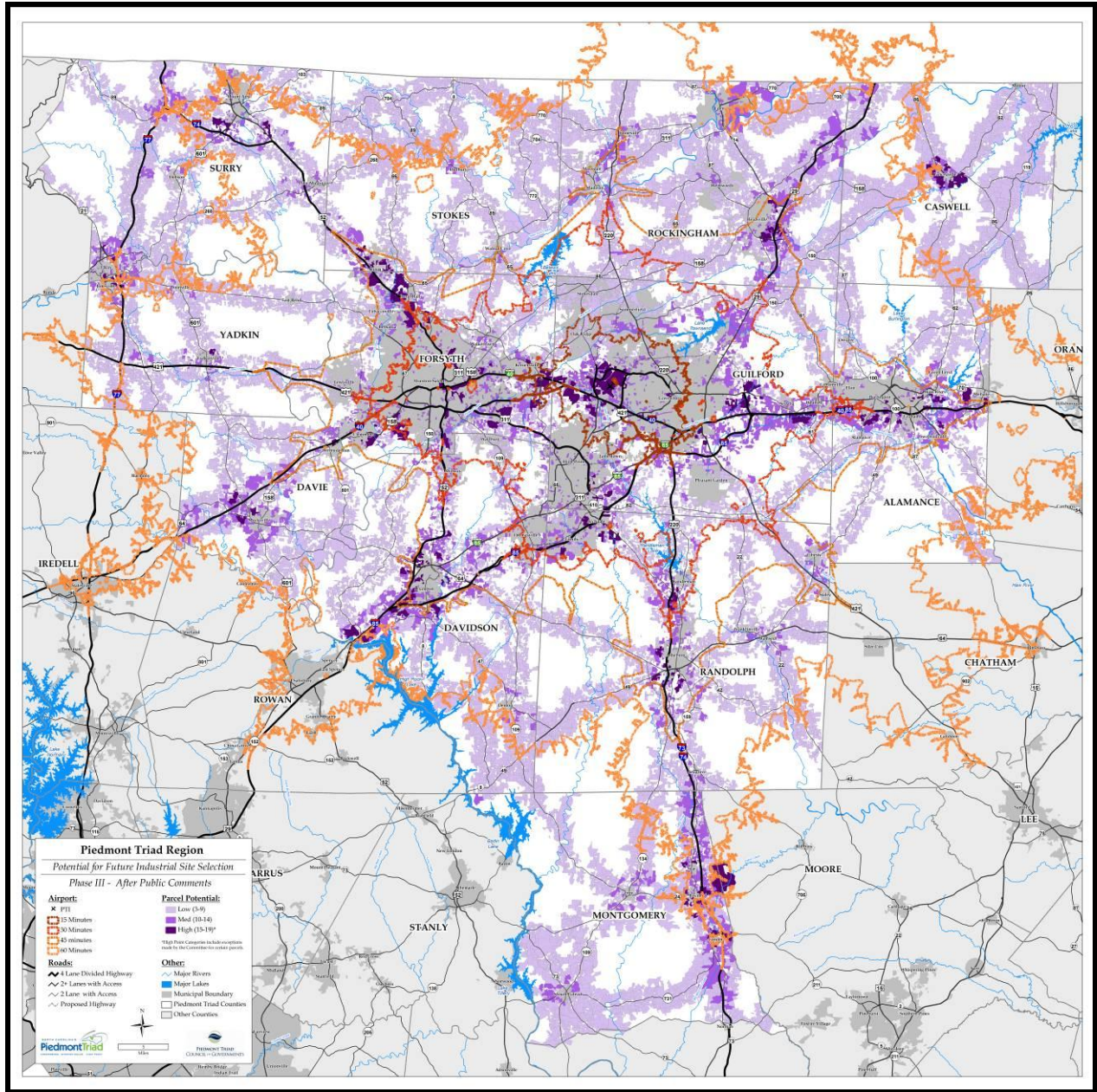
TABLE 21 – Example Top Parcel Attribute Table

Ra-1-6	Ra-1-5	Ra-1-4	Ra-1-3	Ra-1-2	Ra-1-1	ID
15	15	16	16	16	18	Total Rank
J L DARR & SONS INC	FARLOW, WILLIAM R & BARBARA R	BLAIR, ROBERT L M JR & ROBERT III	J L DARR & SONS INC	HONBARRIER COMPANY INC	ENGLISH, JAMES W & NEREUS C	Owner Name
7708858110	7718878014	7717866869	7718926629	7718203484	7718059198	PIN
40.82	83.67	196.61	36.16	60.86	258.79	Total Acres
3.53	11.96	25.68	7.93	1.10	43.48	Environmental Constrained Acres
37.29	71.70	170.93	28.23	59.77	215.31	Usable Acres
2 Major TFs NI, proposed Major TF connector	Existing Freeway and Major TF NI	MF NI	Major TF; Major TF NI	Freeway; 2 Major TF NI	Near Existing Freeway; Major TF NI	Transportation Plan
M-2, M-1	R-12.5; R-15; R-40	Mostly R-40; some R-15 and B-1	Mostly M-2; some B-1	M-1, M-2; some R-15	Mostly R-15; some M-2; M-1, R-40	Zoning
Undeveloped	Ag; Residential	Future LU plan says SF	Industrial; Vacant	undeveloped; Future LU: SF	Undeveloped; Future LU Plan : TN, LI	Land Use
1 Parcel	10 parcels	1 Parcel	11 Parcels	2 parcels	1 Parcel	Cluster
III P; IV P	IV P	III P; IV P	IV P	III P; IV P	IV P, III P	WSW
Archdale	part in Archdale; currently has well and septic, but in Service Area on map and near other parcels with water and sewer	Partially in Archdale; some sort of convenience store on the property (in the B-1 zoning area)	Archdale; 1 big industrial building, and some vacant parcels	Archdale	most in Archdale, part in Trinity	Notes

Phase 3 – Public Comments & Top Parcel Refinements

Following the Phase 3 Workshop, local economic developers, planners and other interested stakeholders were invited to refine Phase 3 results by recommending additions, deletions and corrections to the list of top parcels (see [APPENDIX A](#)). Participants removed existing quarry sites along with the Colonial Pipeline tank farm and added several additional sites for a total of 296 top parcels or parcel clusters (see TABLE 19). Most of these additions met the minimum point threshold. A few parcels not meeting the threshold were added at the request of the Committee. Local experts identified an additional 124 sites as significant economic development opportunities that did not meet the minimum point threshold of the regional analysis. These sites were added to an "Additional Resources" GIS data layer. This layer can be added to the top regional parcels layer to highlight locally significant economic development opportunities.

Point Value	Alamance	Caswell	Davidson	Davie	Forsyth*	Guilford*	Montgomery	Randolph	Rockingham	Stokes	Surry	Yadkin	TOTAL	Cumulative Sum	% Cumulative in Forsyth and Guilford
19	-	-	-	-	3	1	-	-	1	-	1	-	6	6	66.67%
18	-	-	-	-	4	1	-	1	-	-	1	-	7	13	69.23%
17	3	-	-	-	8	5	-	3	1	-	-	1	21	34	64.71%
16	8	-	10	1	10	10	1	9	1	-	4	1	55	89	47.19%
15	16	-	28	-	25	35	2	18	14	-	3	8	149	238	42.86%
14	x	-	x	6	x	x	14	x	x	1	x	x	21	259	39.38%
13	x	3	x	x	1	x	x	x	x	-	x	x	4	263	39.16%
12	x	7	x	x	x	x	x	x	x	23	x	x	30	293	35.15%
11	x	x	x	x	1	x	x	x	x	x	x	x	1	294	35.37%
10	x	x	x	x	1	1	x	x	x	x	x	x	2	296	35.81%
TOTAL	27	10	38	7	53	53	17	31	17	24	9	10	296		



MAP 11 - Phase 3: Top Potential Economic Development Sites – After Public Comments

Phase 4 – Acreage Calculations by County

The acreages of the 296 top sites identified in Phase 3 were calculated for parcels currently zoned “Residential/Agricultural”; “Non-Residential/Non-Agricultural” (something other than Residential/Agricultural) (see TABLE 22).

Top sites currently zoned “Non-Residential/Non-Agricultural” were then analyzed to calculate the acreage of land currently zoned for industrial purposes.

Top sites currently zoned “Industrial” were then assessed to calculate the acreages of land currently used for industrial purposes, the total acreages of undeveloped (raw) land and the usable acreages of the raw land zoned “Industrial”. The final results of this study show that the Piedmont Triad currently has 7,236 acres of high-priority, undeveloped land that is presently zoned for industrially use.

TABLE 22 – Acreage Calculations For Top Parcels							
County	Total Acreage	Acreage Zoned Residential/Agriculture	Acreage Zoned Non-Residential/Agriculture	Of Non-Residential/ Non-Agricultural Zoned Areas, Acreage Zoned Industrial Only	Of Industrial Zoned Areas, Acreage of Existing Industrial Land Use	Of Industrial Zoned Areas, Acreage of Raw Land	Of Industrial Zoned Raw Land, Usable Acreage
Alamance	2,662.00	624.91	2,037.09	1,878.94	796.94	1,082.00	892.54
Caswell	2,115.26	1,863.00	252.26	159.96	65.30	94.66	94.66
Davidson	4,421.39	2,283.52	2,137.87	1,771.88	870.20	901.68	615.92
Davie	1,027.31	755.37	271.94	161.01	106.58	54.43	48.32
Forsyth	11,127.77	4,282.22	6,845.55	6,237.71	4,407.45	1,830.27	1,491.77
Guilford	10,348.93	3,121.39	7,227.54	6,429.27	4,294.10	2,135.17	1,727.04
Montgomery	4,837.36	3,949.85	887.50	887.50	101.40	786.10	721.66
Randolph	3,036.09	1,903.33	1,132.76	993.55	445.57	547.98	491.91
Rockingham	1,161.83	424.09	737.74	719.17	213.91	505.26	444.15
Stokes	928.60	523.76	404.84	384.40	12.12	372.28	335.15
Surry	1,208.78	449.98	758.80	747.79	327.89	419.90	346.88
Yadkin	599.95	463.18	136.76	136.76	99.84	36.93	26.16
TOTAL	43,475.27	20,644.59	22,830.67	20,507.94	11,741.28	8,766.66	7,236.17

Appendix A – Summary of Phase 3 Public Comments

Location	Contact	Their Comments	Our Response
Montgomery County	Scott Carpenter	Suggest dropping the bottom threshold line from 15 to 14 across the board; does not agree to drop the line for certain counties.	If we drop the line to 14, this will increase the top priority parcels to 669 parcels. We feel this is too many parcels to individually evaluate.
City of High Point	Heidi Galanti (and others)	Sent us a GIS file and map with comments about the High Point parcels; she also proposed 12 new features to consider adding.	We attached her comments to the High Point parcels; we also evaluated the parcels she wanted us to add (only 2 received at least 15 points, so we added those to the County layer; the other 10 were added to the Additional Resources layer)
Montgomery Economic Development Corporation	Judy Stevens	Informed us what parcels are included in the Montgomery/Moore County Mega-site	We added the entire site to the Montgomery County files
Land Supply Committee	Committee	Wants us to double check our un-built/new roads; Double check the workshop 2 maps; Add the current inland port	We added the 73/74 connector from the W-S northern beltway to PTIA and adjusted parcel values here (this added 1 parcel in Forsyth and 2 in Guilford); we tried calling several folks about their workshop 2 map comments (still waiting on Davidson County); added the inland port (off of Chimney Rock Road) even though it does not meet the criteria (it only received a point value of 10)
Town of Kernersville	Debi Grant	Sent us their "Industrial Inventory" GIS file. They asked us to replace the Kernersville results with what they were providing.	We cannot replace their data with ours. We went through the parcels they sent and added any that received 15 points in value. All of the others we added to our "Additional Resources" layer to indicate that local experts think these sites are important. Some of their sites were 0.5 acres in size, so they do not meet our criteria. They sent them to us because they are available industrial property.
City of Winston-Salem/Forsyth County	Steve Smotherman	Provided us comments for most all of the sites identified in Forsyth County (told us which ones were good sites, which were already mostly developed, and which ones he would recommend to remove); he also provided a map/list of sites to consider adding	We attached his comments to Forsyth County parcel layer (we did not remove any) and we evaluated his list of ones to add (there were 19, 6 of these we were able to add to the Forsyth County layer, the other 13 we added to the Additional Resources layer) (At Steve and Marlene's request, added 2 parcels and removed 1; regardless of point value)
Samet Corporation	Brian Hall	Wants us to add the title "Piedmont Corporate Park" to G-1-02; wants us to add the Triad Business Park	We changed the title for G-1-02 and added the Triad Business Park based on the maps and addresses that Brian provided

Appendix A – Summary of Phase 3 Public Comments (continued)

Location	Contact	Their Comments	Our Response
Highwoods Properties (Greensboro)	Rick Dehnert, Lara Knight	Wants us to look at Enterprise Park off of Brigham Rd to add; also sent a list of their properties and indicated which ones were currently available	We added the Enterprise Park because it got 15 points on our system; we evaluated the rest of their properties and any that got at least 15 points (Airpark East/South) were added to the Guilford County file; and that did not meet our criteria were added to the Additional Resources layer
Anderson & Associates, Inc. (Greensboro)	James Billups	Wants us to add the Carolina Corporate Center	This parcel only ranks a 13 on our scale, so we added it to the Additional Resources layer
Village of Clemmons	Megan Ledbetter	Recommended that we remove 3 of the Clemmons parcels and saw 1 site that we could add	Of the 3 parcels she asked us to remove, 1 of these Steve Smotherman agreed with (so we made a note of this) and the other 2 are a part of the Forsyth County proposed industrial parks; the 1 site she asked us to add had already been added with Steve's comments
Randolph County Economic Development	Bonnie Renfro	Recommended 2 sites to add; she also provided comments about many of Randolph County's top sites; she also inquired about why no parcels popped up in Trinity.	For the 2 sites she wants added, we were able to add the one in Archdale's ETJ (even though it is owned by multiple owners) but the other site along 311 we had to add to the Additional Resources layer because it did not score high enough. We added all of her comments to the parcel file. We re-evaluated Trinity's sewer areas and were able to add 1 parcel in Trinity but she said this would not be a good parcel, so we added those comments to the new parcel.
12-County	Committee	Remove active quarries and tank farm	Removed active quarries and tank farm

