

Hillsborough County 2045 Population and Employment Projections

*Technical Memorandum No. 2:
Buildout Potential, Suitability Analysis and Trend Scenario*

prepared for

Hillsborough County MPO and Planning Commission

prepared by

Cambridge Systematics, Inc.

report

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1.0 Introduction

The Hillsborough County Planning Commission and Metropolitan Planning Organization both require projections of population, employment and other demographic and land use data to the year 2045 to facilitate local and regional planning efforts. This includes the County Comprehensive Plan, MPO Regional Transportation Plan (RTP) and planning functions of other agencies including the Hillsborough County School Board, HART, Fire/EMS, Parks and Recreation, and Public Works.

The MPO and Planning Commission have chosen to undertake a scenario planning process as part of the 2045 population and employment projection process. This process includes the development of alternative transportation and land use scenarios and, ultimately, a Hybrid Scenario. The primary tool to develop and evaluate the scenarios is a land use model (LUM) developed using the CommunityViz Scenario 360 platform.

This Technical Memorandum describes the development of the Trend Scenario as part of the LUM. The Trend Scenario reflects current policy and practice and emerging trends, and is the starting point for the development of the alternative scenarios.

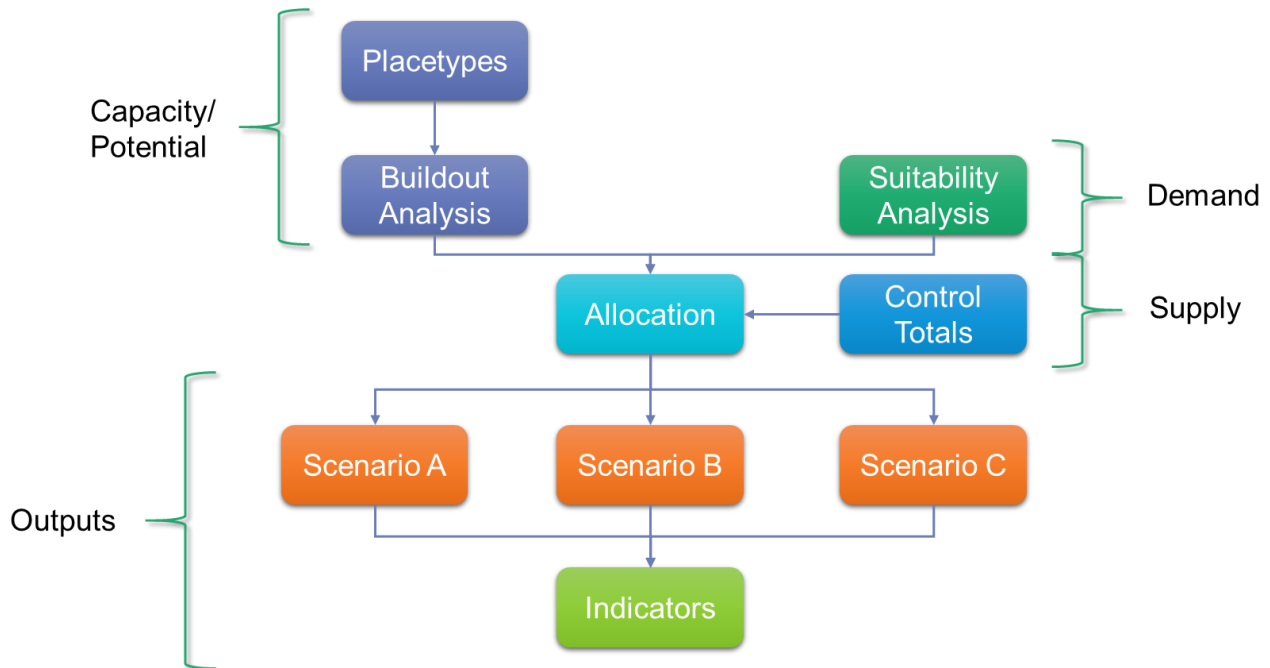
2.0 Model Overview

The LUM can be described in terms of four main components:

- Land Use Capacity and Potential: The capacity, or development potential, of land is determined by a Buildout Analysis that considers the amount and location of vacant and redevelopable land, and relevant attributes, such as land use mix, density and intensity, as prescribed by corresponding Placetypes.
- Demand: The demand for growth is determined by a Suitability Analysis that determines the relative attractiveness of land.
- Supply: Control totals, typically population and employment, determine how much growth is to be allocated.
- Outputs: The results of the allocation process are used to produce information about each scenario, known as Indicators.

The model components and process are graphically represented in Figure 1.

Figure 1. Land Use Model Overview

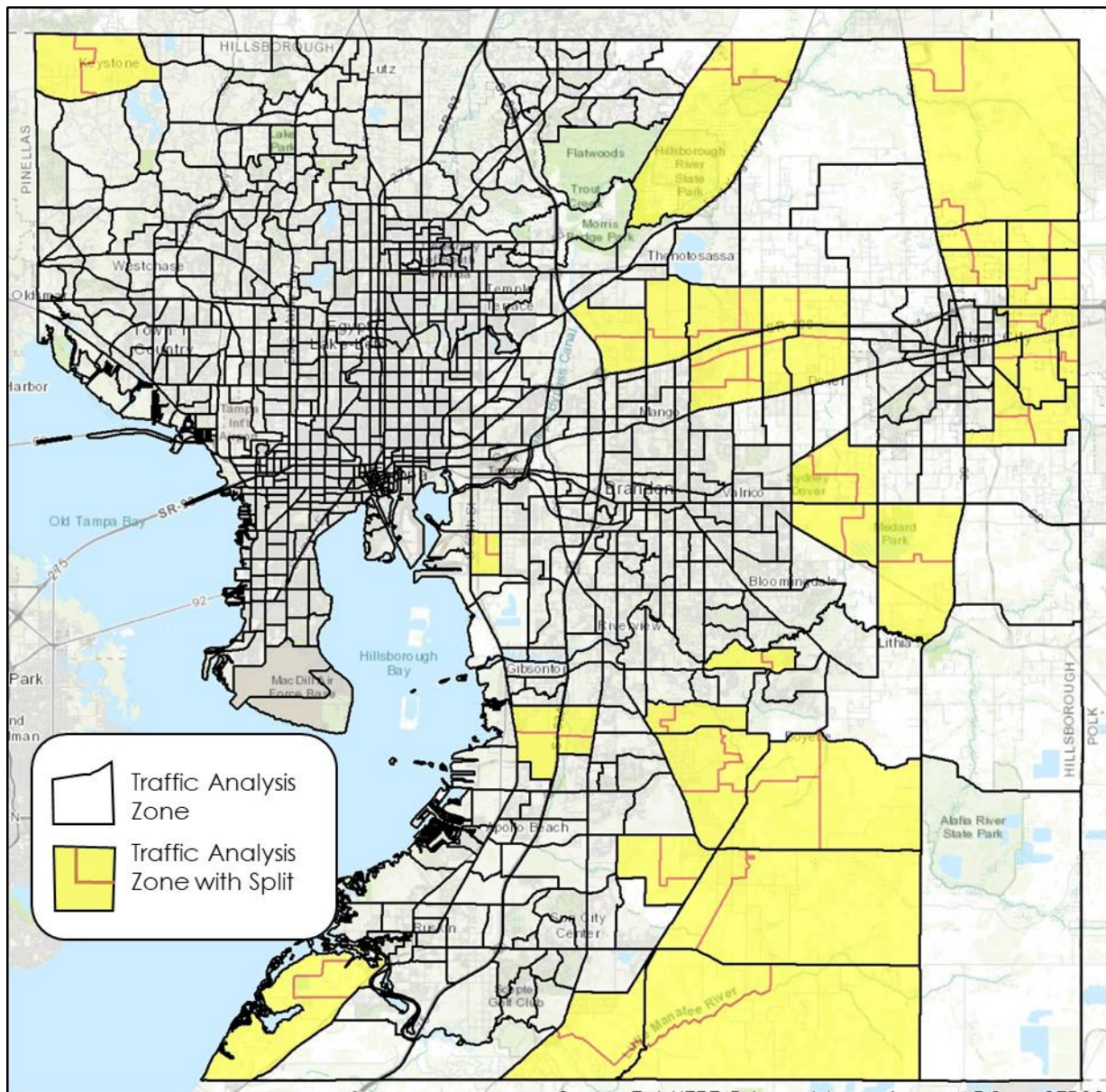


3.0 Model Structure

3.1 Polygons

Polygons are the basic geographic unit of the LUM. They are the “building blocks” use to characterize, existing development, determined buildout potential and ultimately allocate growth. The traffic analysis zone structure (TAZ) from the Tampa Bay Regional Planning Model (TBRPM) is used as the basis for the LUM polygons. In some cases, TAZs were subdivided based on guidance from MPO and PC staff to provide more granularity where desired. The LUM polygons, including the base TAZ structure and subdivisions, are provided in Figure 2.

Figure 2. Polygon Structure



3.2 Base Year Data

The model includes data on base year conditions to support existing conditions analysis as well as to serve as a starting point for the buildout analysis and allocations. Table 1 provides a description of base year data attributes and sources. A more detailed data dictionary of field name definitions is provided in the appendix.

Table 1. Base Year Data Attributes

Attribute Type	Source
Existing Land Use	Hillsborough County Property Appraiser parcel database
Vacant Land (Constrained and Unconstrained)	Vacant and redevelopable land analysis (see TM 1)
Redevelopable Land (Constrained and Unconstrained)	Vacant and redevelopable land analysis (see TM 1)
Population	US Census via Hillsborough County Planning Commission
Dwelling Units	US Census via Hillsborough County Planning Commission
Employment	InfoUSA via Florida Department of Transportation District 7

4.0 Buildout Analysis

The Buildout Analysis is an important initial step in the LUM process because it establishes the carrying capacity of the land, which, in turn, determines the upper limits for the type, amount and character of growth. It is determined by the amount of vacant and redevelopable land, described in Technical Memorandum No. 1, and corresponding Placetype, described below.

4.1 Placetypes

Placetypes describe the “DNA” of a place, which is to say, the fundamental attributes such as the mix and character of land uses and activities, the intensity of those land uses, level of connectivity, and so on. Thus, Placetypes refer to a place and its interactions as a whole and not individual parcels or land uses.

For the Hillsborough LUM, a set of placetypes were created to replicate existing conditions and emerging trends revealed in Technical Memorandum No. 1 and assigned to polygons. In addition to the Future Land Use Map (FLUM), Planning Commission staff guidance on emerging trends and observed trend information, remaining development programs associated with Developments of Regional Impact (DRI) were consulted to ensure that assigned placetypes produce similar results.

The Trend Scenario placetype assignment map is shown in Figure 3, while an overview of each placetype is provided in . Detailed placetype definitions are provided in the appendix.

Figure 3. Trend Scenario Placetype Assignment

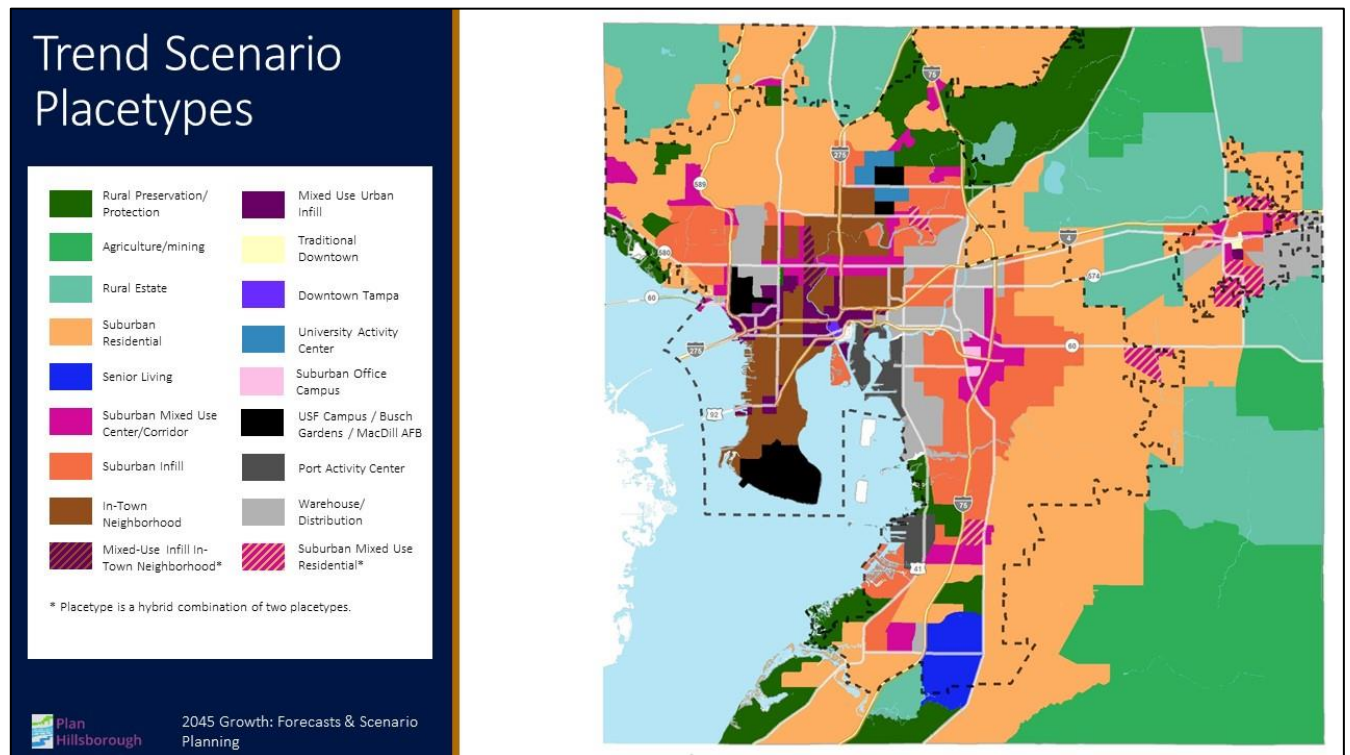


Figure 4. Placetype Summaries

Placetype	Rural Preservation / Environmental Protection	Suburban Residential	Senior Living Community	Suburban Mixed Use Center/Corridor	Suburban Infill	In-Town Neighborhood
Description	Rural, managed and protected lands. Very limited single-family home sites on large parcels.	Lower density, suburban-style home sites characterized by larger lots/yards, curvilinear cul-de-sac street networks with low access points.	Similar to Suburban Residential, but smaller lot sizes and integrated golf courses and other amenities. Focused on 55+ demographic.	Suburban-style, intensity-oriented power centers, lifestyle centers and strip commercial. Typically anchored by a national tenant and includes outdoor. Located at the intersection of major arterials at interchanges and along major arterials.	Higher density, infill development and redevelopment in typically suburban locations, with established single-family homes mixed with new multi-family housing.	Predominantly single-family neighborhoods clustered around community destinations, schools, town centers, etc. Characterized by a pattern of small, walkable blocks and a high rate of connectivity. Can include some attached dwelling units (such as townhomes) in neighborhood cores.
Primary Uses	None	Single family homes	Single family homes; Manufactured homes	Commercial/retail; Service	Townhomes; Multi-Family; Small lot single-family	Small lot single family
Secondary Uses	Limited single-family homes	Townhomes and garden-style apartments; limited retail/service; schools	Townhomes; Golf courses; Limited retail/service; office; health care	Garden-style apartment complexes; Office/professional; hotel/motel; Health care	Limited neighborhood commercial; limited institutional	Townhomes, commercial, civic/institutional.
Residential Density	Low Med High Less than 1 unit per acre	Low Med High 4 to 16 units per acre	Low Med High 5 to 12 units per acre	Low Med High 4 to 28 units per acre	Low Med High 4 to 20 units per acre	Low Med High 7 to 48 units per acre
Residential Intensity	NA	Low Med High 0.2 to 0.3 FAR	Low Med High 0.2 to 0.6 FAR	Low Med High 0.2 to 0.4 FAR	Low Med High 0.2 to 0.3 FAR	Low Med High 0.2 to 1.0 FAR
Riding Heights	Low Med High 1 to 2 stories	Low Med High 1 to 2 stories	Low Med High 1 to 2 stories	Low Med High 1 to 4 stories	Low Med High 1 to 4 stories	Low Med High 1 to 3 stories
Open Space	80%: Rural, protected land Limited	20%: Active (pocket parks, regional parks) Low	30%: Active (pocket parks, regional parks, golf courses) Low	5%: Passive Low	10%: Active (pocket parks, regional parks) Low	10%: Active (pocket parks, regional parks); Passive High
Urban Form	Natural Preservation	R-3, R-4, R-6, SMU-6 Low	R-4, R-6, R-8, R-12 Low	SMU-6; OPV; OML-12; UML-20; R-6; RML-35 Low	R-6; R-8; R-20 Low	R-10; R-6; Public/Semi-Public; OML-35 High
Urban Form	C1-Natural	C3R-Suburban Residential	C3R-Suburban Residential	C3C-Suburban Commercial	C3R-Suburban Residential	O4-Urban General
Urban Form	Icons: 🏡 🚗 🚲	Icons: 🏡 🚗 🚲	Icons: 🏡 🚗 🚲	Icons: 🏡 🚗 🚲	Icons: 🏡 🚗 🚲	Icons: 🏡 🚗 🚲
Urban Form	Lower Hillsborough Wilderness Preserve; Blackwater Creek Preserve	Brandon, Riverview, New Tampa	Sun City Center	Brandon Town Center area; Westshore Plaza; Citrus Park	Town n County; Temple Terrace	South Tampa
Urban Form						
Urban Form	Representative Photos					

Placeholder	Mixed Use Urban Infill	Traditional Downtown	Downtown Tampa	University Activity Center	Busch Gardens	University of South Florida
Description	A mix of mid and high rise apartments and condos, office buildings, established single family homes, and regional entertainment/retailing uses.	Traditional small downtown.	The innermost core, central business district.	Areas immediately surrounding the USF campus, characterized by research and development, student housing and service-oriented retail.	Property encompassing the Busch Gardens theme park.	Property encompassing the University of South Florida main campus.
Primary Uses	Office/professional, multi-family, commercial/retail/entertainment	Retail, service, civic/institutional	Office/professional, civic/institutional	University/professional (retail), multi-family, Retail/commercial, Health Care, Student oriented retail.	Special use entertainment	Higher education, Research and development, Conference event space / hotel, Limited retail and commercial, Dormitory
Secondary Uses	Hotel/motel, limited single family residential	Multi-family, office, single family	Multi-family, retail/commercial/entertainment, health care, education, hotel/motel	Hotel/motel	None	None
Residential Density	<p>Low Med High 7 to 100 units per acre</p>	<p>Low Med High 6 to 35 units per acre</p>	<p>Low Med High 100 to 300 dwelling units per acre</p>	<p>Low Med High 4 to 42 dwelling units per acre</p>	<p>Low Med High NA</p>	<p>Low Med High 0.4 to 1.5 FAR</p>
Non-Residential Intensity	<p>Low Med High 0.3 to 2.5 FAR</p>	<p>Low Med High 0.5 to 1.0 FAR</p>	<p>Low Med High 1.5 to 10.0 FAR</p>	<p>Low Med High 0.4 to 0.75 FAR</p>	<p>Low Med High 0.25 FAR</p>	<p>Low Med High 0.4 to 1.5 FAR</p>
Building Heights	<p>Low Med High 4 to 16 stories</p>	<p>Low Med High 1 to 3 stories</p>	<p>Low Med High 16 to 32 stories</p>	<p>Low Med High 1 to 6 stories</p>	<p>Low Med High 1 to 2 stories</p>	<p>Low Med High TBD</p>
Open Space	<p>5%: Active (golfet parks, neighborhood parks) High</p>	<p>5%: Active (golfet parks, neighborhood parks, civic plazas) High</p>	<p>5%: Active (golfet parks, neighborhood parks, civic plazas) High</p>	<p>1%: Passive Medium</p>	<p>TBD Low</p>	<p>50%: Active (golfet parks) High</p>
Connectivity	<p>High</p>	<p>High</p>	<p>High</p>	<p>Medium</p>	<p>Low</p>	<p>High</p>
Predominant Future Land Use Categories	CMU-35, UMU-90, RMU-100, R-20	DC, DMU-35, R-4, C-16, R-6	OC-Urban Core	R-20, UMU-20, OC-35, LI-OC-20, R-8, Commercial	UMU-60, RMU-100, HI	Public / Semi-Public
Context Classification	OS-Urban Center	OS-Urban Center	OS-Urban Core	OS-Urban Center	NA-Special Use	NA-Special Use
Primary Modes						
Secondary Modes						
Representative and Emerging Places	West Riverfront, Ybor City, Channel District, Harbour Island, Westshore	Plant City, Temple Terrace	Downtown	USF area/Innovation Place	Busch Gardens	USF campus
Representative Photos						

Placetype	Port Activity Center	Agriculture/mining	Warehouse / Distribution / Manufacturing	MacDill AFB	Rural Estate
Description	Land use and associated activities surrounding the Port of Tampa, including shipping/retail, warehouse/distribution and manufacturing.	Low intensity agricultural uses, including citrus, farming and livestock and mining activities.	Large-scale warehouse and distribution centers typically located near interchanges.	Property encompassing MacDill Air Force Base.	Sparse single-family neighborhoods on large lots surrounded by agricultural or rural land. Limited commercial may be found along major roadways and interchanges.
Primary Uses	Freight	Agriculture; Mining	Warehouse/distribution	Military	Single family homes
Secondary Uses	Limited commercial	Limited single family residential	Limited commercial	None	Limited commercial
Residential Density	Low Med High NA	Low Med High Less than one unit per 10 acres	Low Med High NA	Low Med High NA	Low Med High 1 unit per acre
Non-Residential Intensity	Low Med High 0.2 to 0.5 FAR	Low Med High Less than 0.1 FAR	Low Med High 0.2 to 0.7 FAR	Low Med High 0.36 FAR	Low Med High 0.1 to 0.15 FAR
Building Heights	Low Med High 1 to 2 stories	Low Med High 1 story	Low Med High 1 to 2 stories	Low Med High 1 to 2 stories	Low Med High 1 to 2 stories
Open Space					
Connectivity	Low	Low	Low	Low	Low
Predominant Future Land Use Categories	HI, LI	AR, AM, A	HI, LI, OML-12, Industrial, SMU-6	Public / Semi-Public	SMU-6, R-3, ESA, R-1, AE, R-2, AE-1/2.5
Context Classification	NA-Special Use	C-Natural	NA-Special Use	NA-Special Use	C2-Rural
Primary Modes					
Secondary Modes					
Representative and Emerging Places	Port of Tampa	Southeast and northeast Hillsborough County	CSX intermodal facility area, County Line Road Area, Skyway Road in Plant City, North of Tampa Airport	MacDill AFB	Keystone, LZ2
Representative Photos					

4.2 Buildout Analysis

A buildout analysis of the Trend Scenario was performed in CommunityViz based on the amount of unconstrained vacant and developable land and the attributes of assigned Placetypes. This was an iterative process, as initial versions of the Trend Scenario did not have enough capacity to accommodate the projected 2045 population for Hillsborough County (2,007,000).

Initial versions of the Trend Scenario limited non-rural Placetypes to polygons within the Urban Service Area (USA). However, in order to provide enough capacity to accommodate projected year 2045 population projections, non-rural placetypes were ultimately assigned to polygons located outside of the USA. Thus, it is also referred to as the Trend “Plus” Scenario. Comparisons between existing population and employment and capacities in the initial Trend and ultimate Trend “Plus” Scenarios are provided in Figure 5 and Figure 6, respectively.

Figure 5. Trend Scenario Population Capacity

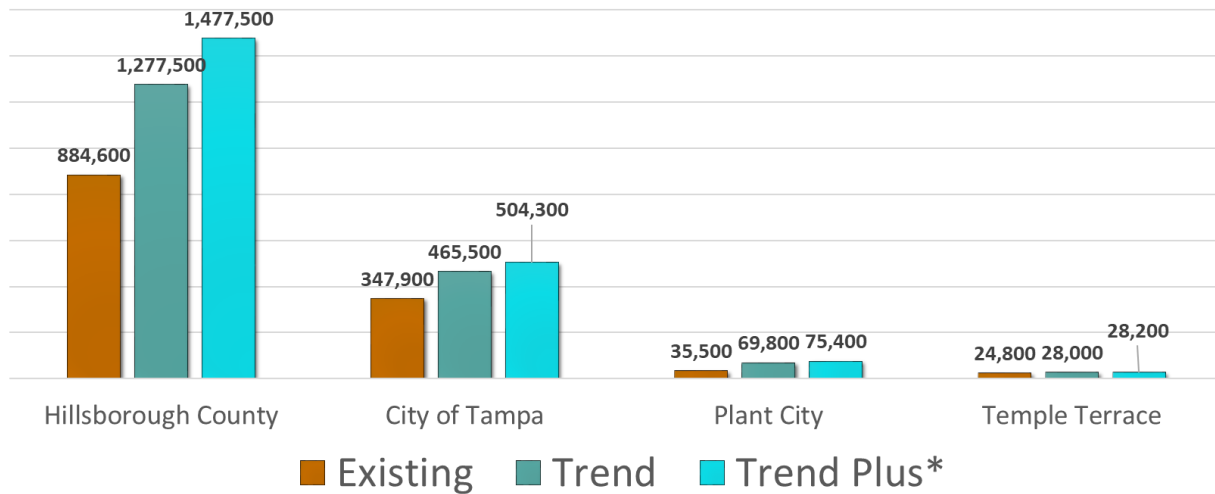
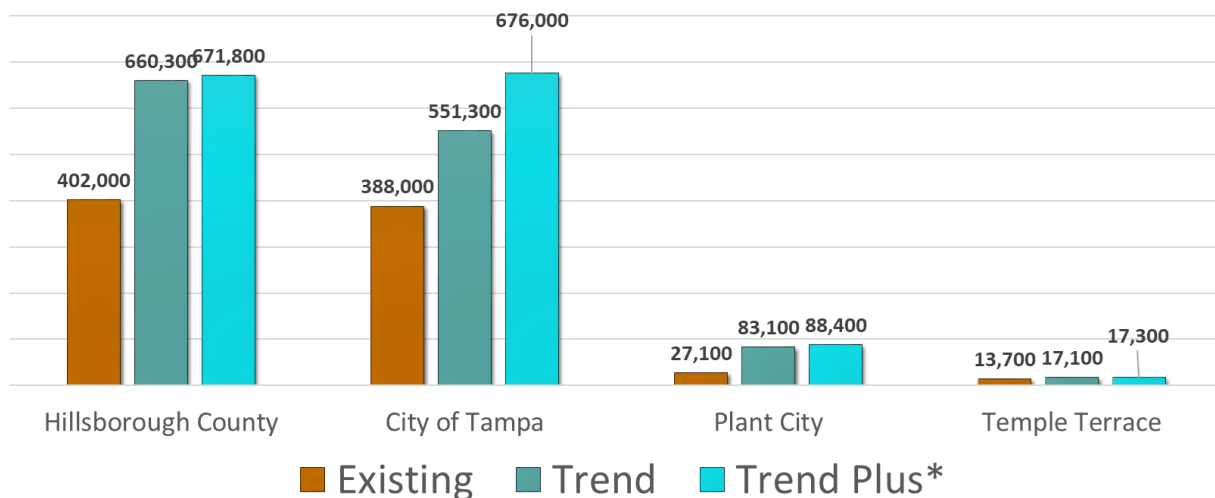


Figure 6. Trend Scenario Employment Capacity



* Adopted as the Trend Scenario.

5.0 Suitability Analysis

The Suitability Analysis rates the attractiveness of land for development. It comprises the demand component of the LUM model allocation process. Separate analyses are conducted for residential, commercial and industrial development.

5.1 Suitability Factors

The Suitability Analysis considers several individual, but relevant, factors simultaneously to develop a composite score. Suitability factors included in the analysis address infrastructure and accessibility, market demand, environmental and physical constraints and quality of life. In some cases, a given factor may apply to certain types of growth but not others. For example, freight rail access is important to industrial growth but not residential. The full list of suitability factors, including definitions, applicability and scoring methodology, is identified in Table 2.

5.2 Weighting

Some factors may yield a greater influence on future growth than others. To address this variation in influence, the Suitability Analysis factors are assigned weights ranging from one (least influence) to ten (greatest influence), so that a factor with a weight of ten will have twice as much influence on the suitability score as a factor with a weight of five.

Planning Commission and MPO staff were polled on the relative weight of each suitability factor. The results of the polling are reflected in the suitability factor weighting scheme as depicted in Table 3.

5.3 Results

The Suitability Analysis assigns each polygon a normalized score from 0 (lowest score) to highest (100). The results of the Residential, Commercial and Industrial Suitability Analyses are shown in , and , respectively. For each analysis, only those polygons that include a relevant placetype are included. For example, polygons with a placetype that includes industrial land use (Port Activity Center, Industrial Warehouse and University Activity Center) are included in the Industrial Suitability Analysis.

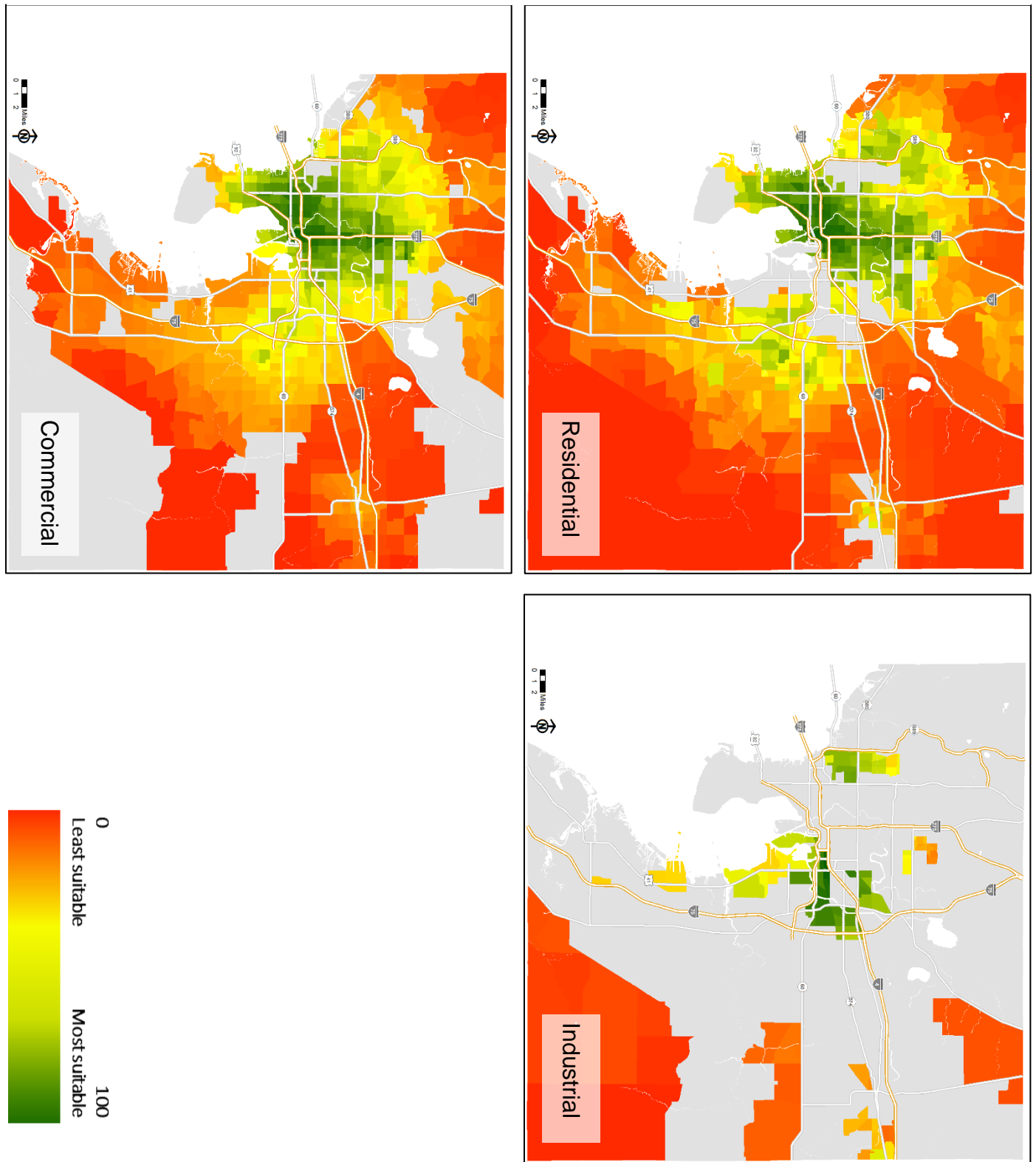
Table 2. Suitability Factors

Criteria	Description	Residential	Commercial	Industrial	Scoring strategy
Access and Infrastructure					
Expressway access	Straightline distance to the nearest expressway interchange (I-4, I-75, I-275, Suncoast Pkwy, Selmon Expwy).	●	●	●	The closer the interchange, the higher the score.
Urban services	Location relative to the urban services area (proxy for water/sewer).	●	●	●	Binary, based on presence inside or outside of the USA.
Utilities	Location relative to water/sewer	●	●	●	The closer the water/sewer coverage, the higher the score
Transit	Amount of TAZ within 1/4 mile radius of transit route.	●	●	□	The higher the percentage, the higher the score.
Airport access	Straightline distance to Tampa International Airport.	□	●	●	The closer the airport, the higher the score.
Intermodal access	Straightline distance to Port of Tampa, CSX intermodal facility, Linder Airport, and Port Manatee.	□	□	●	The closer the port/intermodal facility, the higher the score.
Rail access	Straightline distance to the nearest rail.	□	□	●	The closer the rail line, the higher the score.
Walkability	Walkability of the TAZ based on intersection, sidewalk density, and bicycle facility density.	●	●	□	The higher the percentage, the higher the score.
Market					
Arterial frontage	Parcels with direct frontage to a functionally classified major arterial.	□	●	□	The greater the frontage, the higher the score.
Population proximity	Number of people within a two mile radius (including host TAZ).	●	●	□	The greater the number of people, the higher the score.
Jobs proximity	Number of jobs within a 30 minute drive (including host TAZ).	●	●	□	The greater the number of jobs, the higher the score.
USF proximity	Straightline distance to USF main campus.	●	●	□	The closer the campus, the higher the score.
Waterfront access	Amount of TAZ within 500 feet of coastline.	●	●	□	The higher the percentage, the higher the score.
Growth hotspot (residential)	New residential building construction permits (weighted by number of units) issued from 2011 to 2017 within a two mile radius (including host TAZ).	●	□	□	The greater the number the higher the score.
Growth hotspot (non-residential)	New non-residential building construction permits issued from 2011 to 2017 within a two mile radius (including host TAZ).	●	●	□	The greater the number the higher the score.
Environmental/physical constraints					
Coastal Hazard Zone	Amount of TAZ within the designated Coastal Hazard Zone.	●	●	●	The higher % zone coverage, the lower the score.
Floodplain	Amount of TAZ within the 100-year floodplain.	●	●	●	The higher % floodplain coverage, the lower the score.
Community/quality of life					
School proximity	Amount of TAZ within 1/4 mile of a public K-12 school.	●	□	□	The higher the percentage, the higher the score.
Park/ greenway proximity	Amount of TAZ within 1/4 mile of a park or greenway.	●	□	□	The higher the percentage, the higher the score.

Table 3. Suitability Factor Weights

Criteria	Residential	Commercial	Industrial
Access and Infrastructure			
Expressway access	7	8	2
Urban services	10	10	10
Utilities	10	10	10
Transit	10	10	NA
Airport access	NA	2	3
Intermodal access	NA	NA	9
Rail access	NA	NA	5
Walkability	10	10	NA
Market			
Arterial frontage	NA	5	NA
Population proximity	9	7	NA
Jobs proximity	5	8	NA
USF proximity	3	8	NA
Waterfront access	7	6	NA
Growth hotspot (residential)	9	NA	NA
Growth hotspot (non-residential)	7	9	NA
Environmental/physical constraints			
Coastal Hazard Zone	4	3	2
Floodplain	4	3	2
Community/quality of life			
School proximity	8	NA	NA
Park and greenway proximity	8	NA	NA

Figure 7. Suitability Analysis Results



6.0 Allocation

The CommunityViz Scenario 360 module Allocator 5 Wizard was used to perform the allocation for the Trend Scenario. The Allocator 5 Wizard assigns new growth to polygons using the capacities established by the Buildout Analysis, attractiveness score established by the Suitability Analysis, and upper limits established by control totals. The allocation settings are described below, followed by a brief summary of the results.

6.1 Allocation Settings

The Allocator 5 Wizard includes several settings that allow users to customize the allocation process. The following setting are used for the Trend Scenario allocation:

- Land Use: The allocation is land use specific (in other words, it differentiates between residential, commercial and industrial allocation). Also, the Wizard is given permission to assign land uses.
- Subregions: The allocation does not use subregions (the allocation draws from countywide control totals).
- Desirability: The Wizard can allocate on a continuum ranging from strict order according to suitability score (setting of “0”) to completely random (setting of “10”). The Trend Scenario allocation uses a setting of “2”, meaning it relies more heavily on the suitability score.
- Control Totals: There are separate control totals for population (714,000) and employment (454,000). The model allocates non-industrial (commercial and office) and industrial employment separately, but they both draw from the same control total.

6.2 Output and Iteration

The scenario allocation results are provided in a set of indicators which include:

- TotalAmountAllocated_RES: Total population allocated.
- TotalAmountAllocated_NONIND: Total non-industrial (commercial and office) employment allocated.
- TotalAmountAllocated_IND: Total industrial employment allocated.
- Population Decline: Net population loss in polygons where redevelopment occurs.
- Commercial Decline: Net employment loss in polygons where redevelopment occurs.
- Residential Adjusted Control Total: Net population allocation (TotalAmountAllocated_RES - Population Decline).
- Commercial Adjusted Control Total: Net employment allocation (TotalAmountAllocated_NONIND + TotalAmountAllocated_IND – Employment Decline).

If the Residential and Commercial Adjusted Control Total indicators do not equal the desired control totals, a second iteration of allocation is required. For the second iteration, the population and employment control totals should be set to equal the Population and Commercial Decline indicator amounts.

6.3 Allocation Results

Figure 8 and Figure 9 show the population and employment results, respectively, relative to capacity for each jurisdiction. With respect to population, the allocation essentially consumed all available capacity for the incorporated cities (Tampa, Temple Terrace and Plant City). The employment allocation consumed all available capacity in Temple Terrace, and left only a marginal amount of remaining capacity in Tampa.

Figure 8. Trend Scenario Population Allocation Results

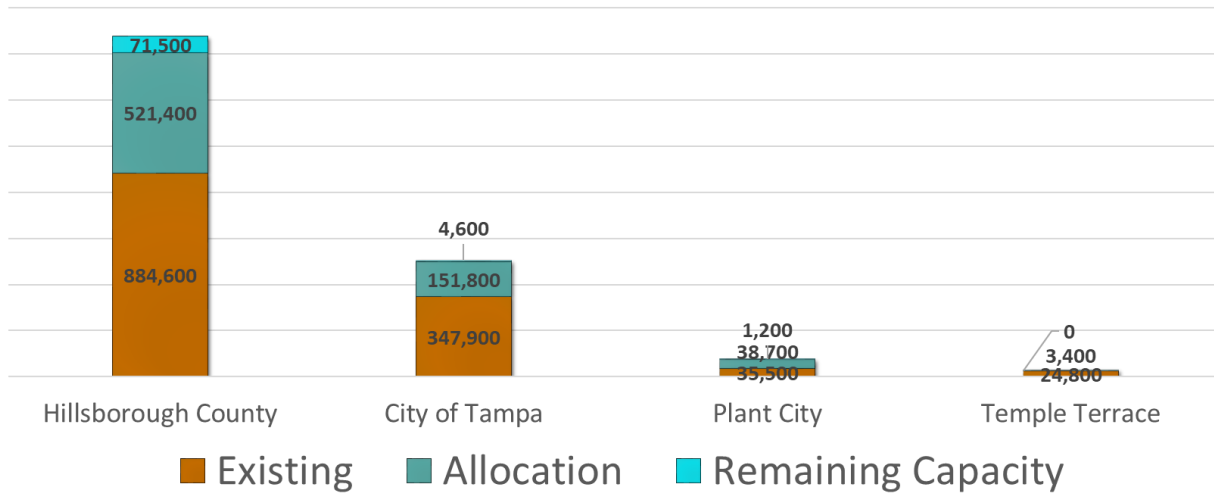
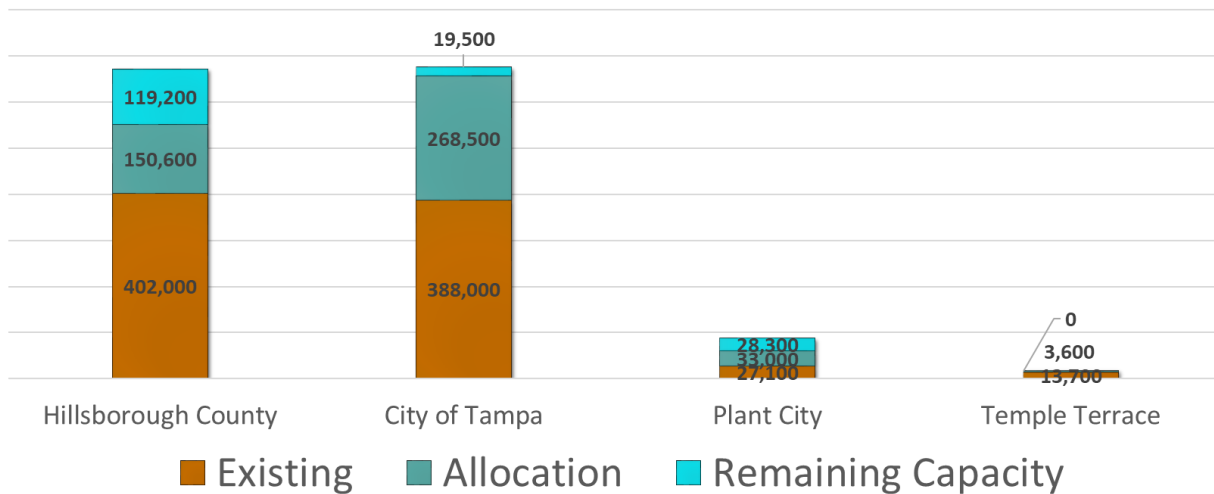


Figure 9. Trend Scenario Employment Allocation Results



Appendix

Appendix Table 1. Detailed Placetype Definitions

Characteristic	Units	Ag. / Mining	Rural Estate	Suburban Res.	Suburban MU Center / Corridor	Suburban MU / Res.	Senior Living Com.	Suburban Infill	Suburban Office Campus	In-Town Neighborhood	Mixed Use Urban Infill	Mixed Use Infill / In-Town Neighborhood	Trad. Downtown	Downtown Tampa	University Activity Center	Port Activity Center	Ware- house/ Dist. / Man.	Busch Gardens	University of South Florida	Tampa Int. Airport	MacDill AFB
Land Use																					
MF residential	%	0	0	10	15	11	10	25	5	20	35	23.75	12.5	12.5	23	0	0		5		
SF residential	%	2	40	52	10	42	35	35	0	35	10	28.75	10	0	2	0	0		0		
Commercial	%	0	5	4	25	9	5	5	20	7.5	10	8.125	20	10	12.5	5	2.5		3		
Office	%	0	0	0	15	4	5	0	40	2.5	15	5.625	12.5	32.5	17.5	5	10		6		
Industrial	%	35	0	0	0	0	0	0	0	0	0	0	0	0	10	50	52.5		1		
Civic/inst.	%	10	5	4	5	4	0	5	10	5	5	5	10	10	10	10	10		15		
Park/openspace	%	50	40	12.5	5	11	30	10	5	10	5	8.75	5	5	7.5	10	5		48		
ROW/infrastructure	%	3	10	17.5	25	19	15	20	20	20	20	20	30	30	17.5	20	20		22		
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100	0	0
Building Characteristics																					
MF residential	Units per acre	0	0	16	28	19	12	18	28	48	60	51	24	250	42	0	0		3.8		
SF residential	Units per acre	0.5	1	4	4	4	5	4.5	0	7	7	7	6	0	4	0	0		0		
Commercial	Floor area ratio	0	0.15	0.25	0.25	0.25	0.2	0.25	0.8	0.5	0.75	0.5625	0.75	1.5	0.5	0.2	0.2		0.41		
Office	Floor area ratio	0	0	0	0.35	0.35	0.6	0	2.5	1	2.5	1.375	1	10	0.75	0.1	0.5		0.96		
Industrial	Floor area ratio	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0.5	0.7		0.88		
Civic/inst.	Floor area ratio	0.005	0.01	0.2	0.2	0.2	0	0.2	1.75	0.2	0.3	0.225	0.5	2	0.7	0.2	0.2		1.44		
Average living area																					
MF residential	Square feet	0	0	1600	1600	1600	1410	1500	1500	1410	1410	1410	1410	1410	1500	0	0		50000		
SF residential	Square feet	2600	2800	2600	2600	2600	2200	2300	0	2200	2200	2200	2200	0	2200	0	0		0		
Occupancy rates																					
MF residential	Persons per dwelling unit	0	0	2.5	2.3	2.5	1.4	2.3	2.1	2.2	1.9	2.1	2.5	1.7	2.5	0	0		24.6		
SF residential	Persons per dwelling unit	1.5	2.7	2.7	2.4	2.6	1.7	2.5	0	2.3	2.3	2.3	2.2	0	2.7	0	0		0		
Commercial	Employees per 1,000 sq ft	0	1.5	1.7	2.2	1.8	2	2.2	2.2	2.2	2.2	2.2	1.8	2.4	2	2.2	2.2		2.8		
Office	Employees per 1,000 sq ft	0	0	0	6	6.0	6	0	3.5	6	6	6.0	6	7	7	8	3.5		5.7		
Industrial	Employees per 1,000 sq ft	1	0	0	0	0	0	0	0	0	0	0.0	0	0	1.2	1.7	0.7		1		
Civic/inst.	Employees per 1,000 sq ft	0.6	0.5	0.8	0.8	0.8	0	0.8	2.5	1.1	0.9	1.1	0.8	3	0.8	0.5	0.8		2.3		
Average Building height																					
MF residential	Stories	1	1	2.5	3	2.5	1	2.5	0	5	5	5	2.5	16	4	1	1		8		
SF residential	Stories	1.1	1.2	1.5	1.5	1.5	1.5	1.5	0	1.5	1.25	1.5	1.5	0	1	1	1		0		
Commercial	Stories	1	1	1	1	1	1	1	1	1	1.25	1	1.25	1.6	1	1	1		1		
Office	Stories	1	1	1	2	2	2	2	3	3	9	5	3	28	3	1.25	2		4		
Industrial	Stories	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1.25		2		
Civic/inst.	Stories	1	1	1	1	1	1	1	0	1.25	2	1.5	1.5	6	4	1.5	1		6		
Parking rate																					
MF residential	Spaces per DU	0	0	1.75	1.75	1.75	1.5	1.75	0	1.5	1.25	1.5	1.5	1	2	0	0		12		
SF residential	Spaces per DU	2.2	2.5	2.2	2.2	2.2	2.2	2	0	2	2	2	2	0	2	0	0		0		
Commercial	Spaces per 1,000 sf	0	6	6	6	6	5	5	5	3.5	3	3	3	1	4	4	4		4		
Office	Spaces per 1,000 sf	0	0	0	6	6	5	0	5	4	4	4	4	2.75	4.5	5	4		4		
Industrial	Spaces per 1,000 sf	1.2	0	0	0	0	0	0	0	0	0	0	0	0	1.2	1.2	1.2		1.2		
Civic/inst.	Spaces per 1,000 sf	3.5	3.5	3.5	3.5	3.5	3.5	3.5	0	3	3	3	3	2.5	3	3	3		3		
Parking size (inc. access)																					
MF residential	Sq ft per space	0	0	350	325	325	325	300	300	300	300	300	300	300	325	0	0		325		
SF residential	Sq ft per space	500	500	350	325	325	325	300	0	300	300	300	300	300	325	0	0		325		
Commercial	Sq ft per space	0	325	325	325	325	325	300	325	300	300	300	325	300	325	325	325		325		
Office	Sq ft per space	0	0	0	325	325	250	0	325	300	300	300	325	300	325	325	325		325		
Industrial	Sq ft per space	450	0	0	0	0	0	0	0	0	0	0	0	0	450	450	450		450		

Characteristic	Units	Ag. / Mining 350	Rural Estate 350	Suburban Res. 350	Suburban MU Center / Corridor 350	Suburban MU / Res. 350	Senior Living Com. 350	Suburban Infill 350	Suburban Office Campus 350	In-Town Neighborhood 325	Mixed Use Urban Infill 325	Mixed Use Infill / In-Town Neighborhood 325	Trad. Downtown 350	Downtown Tampa 325	University Activity Center 350	Port Activity Center 350	Ware- house/ Dist. / Man. 350	Busch Gardens	University of South Florida 350	Tampa Int. Airport	MacDill AFB
Average parking height																					
MF residential	Stories	1	1	1	1.25	1.25	1	1	1	1.25	1.5	1.25	1.5	6	3	1	1		2		
SF residential	Stories	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		0		
Commercial	Stories	1	1	1	1	1	1	1	1	1.5	3	2	3	14	2.5	1	1		2		
Office	Stories	1	1	1	1.5	1.5	1.5	1	1	2	4.5	2.5	3	14	2.5	1	1.25		3		
Industrial	Stories	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1.5		
Civic/inst.	Stories	1	1	1	1	1	1	1	1	1.5	2	1.75	3	4	2	1	1		3		
Trip generation rates (base)																					
MF residential	Auto trip prod. per DU per day	0.0	0.0	6.4	5.9	6.0	6.4	6.3	0.0	5.2	4.4	4.7	5.0	3.5	4.9	0.0	0.0	0.0	2.1	0.0	0.0
MF residential	Non-auto trip prod. DU per day	0.0	0.0	0.6	1.2	0.9	1.0	0.9	0.0	1.0	0.9	0.9	1.0	0.9	0.7	0.0	0.0	0.0	0.5	0.0	0.0
SF residential	Auto trip prod. per DU per day	8.4	8.8	9.0	8.8	8.8	5.3	9.2	9.2	8.3	7.8	7.8	7.4	0.0	7.8	0.0	0.0	0.0	2.3	0.0	0.0
SF residential	Non-auto trip prod. DU per day	0.0	0.0	0.9	1.8	1.3	0.8	1.4	0.0	1.7	1.6	1.6	1.5	0.0	1.2	0.0	0.0	0.0	0.6	0.0	0.0
Commercial	Auto trip attr. per emp day	0.0	0.0	32.7	32.7	32.7	32.7	32.7	32.7	22.9	19.5	19.5	25.0	15.6	32.7	37.7	37.7	0.0	17.8	0.0	0.0
Commercial	Non-auto trip attr. per emp day	0.0	0.0	3.3	6.5	4.9	4.9	4.9	0.0	4.6	3.9	3.9	5.0	3.9	4.9	0.0	0.0	0.0	8.9	0.0	0.0
Office	Auto trip attr. per emp day	0.0	0.0	0.0	3.7	3.7	4.8	3.9	3.8	3.5	3.3	3.3	3.1	2.9	3.7	3.9	3.9	0.0	3.6	0.0	0.0
Office	Non-auto trip attr. per emp day	0.0	0.0	0.0	0.9	0.7	0.7	0.6	0.0	1.0	1.2	1.2	1.2	1.5	1.1	0.0	0.0	0.0	1.8	0.0	0.0
Industrial	Auto trip attr. per emp day	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.7	3.1	0.0	2.0	0.0	0.0
Industrial	Non-auto trip attr. per emp day	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	1.0	0.0	0.0
Civic/inst.	Auto trip attr. per emp day	11.9	18.6	21.0	17.2	17.8	0.0	21.0	0.0	17.2	12.8	15.4	20.3	8.9	12.5	14.0	14.0	0.0	9.0	0.0	0.0
Civic/inst.	Non-auto trip attr. per emp day	0.0	0.0	4.2	2.6	2.7	0.0	4.2	0.0	5.2	4.5	5.4	8.1	4.5	3.8	0.0	0.0	0.0	7.6	0.0	0.0
Water consumption/wastewater generation rate																					
Mid/high res. (> 4 dua)	Gallons per day per DU	250	250	250	250	250	250	250	250	250	225	225	250	225	250	250	250		225		
Low res. (<4 dua)	Gallons per day per DU	350	350	350	350	350	350	350	350	350	325	325	350	325	350	350	350		325		
Commercial	Gallons per day per 1000 sq ft	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150		150		
Office	Gallons per day per employee	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20		20		
Industrial (low)	Gallons per day per employee	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25		25		
Industrial (high)	Gallons per day per acre	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		1000		
Civic/inst.	Gallons per day per person	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		12		
Solid waste generation rates																					
MF residential	Pounds per day per DU	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		5		
SF residential	Pounds per day per DU	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		9		
Commercial	Pounds per day per 1000 sq ft	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		12		
Office	Pounds per day per 1000 sq ft	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		8		
Industrial (light)	Pounds per day per employee	40	0	0	0	0	0	0	0	0	0	0	0	0	40	40	40		40		
Industrial (high)	Pounds per day per 1000 sq ft	70	0	0	0	0	0	0	0	0	0	0	0	0	70	70	70		70		
Civic/inst.	Pounds per day per employee	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		2.5		
Other																					
Intersection density	Four-way intersections per square mile	4	12	100	100	100	120	120	80	200	240	240	200	240	120	32	32		100		
Average block size	Acres	160	60	12	12	12	10	10	14	2.8	3.8	3.8	6.2	3.8	10	24	24		12		
Sidewalk coverage (streets)	Percent	0%	0%	40%	40%	75%	60%	60%	40%	80%	85%	85%	75%	95%	60%	10%	10%		80%		
Street Coverage ¹	Lane miles per square mile	8.0	13.1	29.2	29.2	29.2	32.0	32.0	27.0	60.5	51.9	51.9	40.6	51.9	32.0	20.7	20.7		29.2		
Water/sewer Coverage ²	Linear feet per square mile	0	0	51413	44068	51413	56320	56320	47599	127722	109636	109636	85832	109636	48274	31161	36354		51413		
Average number of lanes		2.5	2.5	3.0	3.5	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	2.5	3.5	3.5	3.0		3.0		

¹This formula used to be $=((\text{SQRT}(640/\text{Z}111)+1)*4)+4$. After a review, it was determined that we could drop the +1 and +4 from the formula. The +1 added an additional interior lane to each block within the square mile. The +4 wrapped the entire square mile area in an additional lane. We felt that since many of the roadways along the exterior of a development were likely already arterial, there was probably not a need to add a lane in addition to the one that is already added to each development by including the external block face, not just the internal block face.

²Since the street coverage is being calculated in lane miles, this formula was modified to divide the length of the water/sewer infrastructure in based on the average number of lanes per road. Rural Preservation, Agriculture/Mining and Rural Estate assume on-site water and sewer.

Appendix Table 2. Data Dictionary

FIELD	TYPE/UNITS	DESCRIPTION	SOURCE
Baseline Conditions			
CV_ID	Numeric	Unique identifier.	NA
TAZ2015	Numeric	Corresponding TAZ number.	NA
RTA2015	Numeric	RTA Area	NA
JUR	Text	Corresponding local government jurisdiction.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\BaseData\Jurisdiction_Poly.shp
Area	Acres	Area of the polygon.	NA
SF_EXLU	Acres	Existing single family land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Single Family Residential"
MF_EXLU	Acres	Existing multi-family land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = Multi-Family Residential"
COM_EXLU	Acres	Existing commercial land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Commercial"
OFF_EXLU	Acres	Existing office land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Office"
INST_EXLU	Acres	Existing institutional land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Institutional"
IND_EXLU	Acres	Existing industrial land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Industrial"
AGR_EXLU	Acres	Existing agricultural land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Agricultural"

PKOPN_EXLU	Acres	Existing park/recreational/open space land use.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Park / Open Space" Greenways and Natural Corridors - X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\GreenwayNaturalCorridors.shp Tampa Parks - X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\Parktpatrptc County Parks - X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\Parks
PROT_EXLU	Acres	Protected lands. (not exclusive of other land uses)	Preserves and Restoration Areas - X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\ELAPP.shp Florida Management Land projects flma - X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\flma_jun10_Project.shp Florida Management Land projects wmdl - X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\wmdl_jun10_Project
ROW_EXLU	Acres	Existing ROW land.	Parcel layer based on DOR code. X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field LANDUSE = "Right of Way" Residual polygon area - not anything already classified as existing land use or constrained land.
SF_EXDU	Dwelling units	Existing single family housing.	ZDATA1 - To be provided by Hillsborough MPO.
MF_EXDU	Dwelling units	Existing multi-family housing.	ZDATA1 - To be provided by Hillsborough MPO.
TOT_EXDU	Dwelling units	Total housing.	SF_EXDU + MF_EXDU
SF_EXPOP	People	Existing single family population	ZDATA1 - To be provided by Hillsborough MPO.
MF_EXPOP	People	Existing multi-family population	ZDATA1 - To be provided by Hillsborough MPO.
TOT_EXPOP	People	Existing population	SF_EXPOP + MF_EXPOP
COM_EXEMP	Employees	Commercial employment	ZDATA2 - To be provided by FDOT.
OFF_EXEMP	Employees	Office employment	ZDATA2 - To be provided by FDOT.
INST_EXEMP	Employees	Institutional employment	ZDATA2 - To be provided by FDOT.
IND_EXEMP	Employees	Industrial employment	ZDATA2 - To be provided by FDOT.

TOT_EXEMP	Employees	Total employment	COM_EXEMP + OFF_EXEMP + INST_EXEMP + IND_EXEMP
COM_EXSF	Square feet	Commercial space	AGR_EXLU + X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field HEAT_AR where LANDUSE = "Commercial"
OFF_EXSF	Square feet	Office space	AGR_EXLU + X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field HEAT_AR where LANDUSE = "Office"
INST_EXSF	Square feet	Institutional space	AGR_EXLU + X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field HEAT_AR where LANDUSE = "Institutional"
IND_EXSF	Square feet	Industrial space	AGR_EXLU + X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\TPCPARCELS_POLY_GENLU_1.shp; Attribute field HEAT_AR where LANDUSE = "Industrial"
DEV_PROT	Acres	Vacant land (including SF > 10 acres) that is on park and/or protected land.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\VacantRedevelopable\Vacant_Land_dissolve_ParksProtected.shp
DEV_UNPROT	Acres	Vacant land (including SF > 10 acres) that is NOT on park and/or protected land.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\VacantRedevelopable\Vacant_Land_dissolve.shp minus DEV_PROT
DEV_CON	Acres	Unprotected vacant land that is wetland constrained.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Constraints\Vacant_Land_dissolve_Wetlands.shp minus [Layer:Wetlands_ParksProtected_reproj_Vacant].shp
DEV_UNCON	Acres	Unprotected vacant land that is NOT wetland constrained.	DEV_UNPROT - DEV_CON
REDEV_PROT	Acres	Redevelopable land that is on park and/or protected land.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\Redevelopable_Land_Property_FAR_ParksProtected.shp, where BdLdRatio <= 0.5 OR FAR <= 0.2
REDEV_UNPROT	Acres	Redevelopable land (including SF > 10 acres) that is NOT on park and/or protected land.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\Redevelopable_Land_Property_FAR.shp, where BdLdRatio <= 0.5 OR FAR <= 0.2 minus REDEV_PROT
REDEV_CON	Acres	Unprotected redevelopable land that is wetland constrained.	X:\Proj\2015\150111 - HlsbrghMPO GPC15_OnCall\002 - 2045SES\GIS\Shapefiles\Land Use\Redevelopable_Land_Property_FAR_Wetlands.shp, where BdLdRatio <= 0.5 OR FAR <= 0.2 minus Wetlands_ParksProtected_Redvelopable.shp, where BdLdRatio <= 0.5 OR FAR <= 0.2

REDEV_UNCON	Acres	Unprotected redevelopable land that is NOT wetland constrained.	REDEV_UNPROT - REDEV_CON
Buildout Analysis			
Ptype	Text	Assigned placetype	Trend Concept Map and MPO Staff
New_SF_LU	Acres	New single-family land use	(DEV_UNCON + REDEV_UNCO) * Percentage of Single-Family Land Use based on assigned Placetype
New_MF_LU	Acres	New multi-family land use	(DEV_UNCON + REDEV_UNCO) * Percentage of Multi-Family Land Use based on assigned Placetype
New_COM_LU	Acres	New commercial land use	(DEV_UNCON + REDEV_UNCO) * Percentage of Commercial Land Use based on assigned Placetype
New_IND_LU	Acres	New industrial land use	(DEV_UNCON + REDEV_UNCO) * Percentage of Industrial Land Use based on assigned Placetype
New_OFF_LU	Acres	New office land use	(DEV_UNCON + REDEV_UNCO) * Percentage of Office Land Use based on assigned Placetype
New_INST_LU	Acres	New institutional land use	(DEV_UNCON + REDEV_UNCO) * Percentage of Institutional Land Use based on assigned Placetype
New_OPN_LU	Acres	New open space / parks land	(DEV_UNCON + REDEV_UNCO) * Percentage of Open Space / Parks Land Use based on assigned Placetype
New_ROW_LU	Acres	New ROW land	(DEV_UNCON + REDEV_UNCO) * Percentage of ROW Land Use based on assigned Placetype
New_SF_DU	Dwelling units	New single-family dwelling units	New_SF_LU * Percentage of Single-Family Density based on assigned Placetype (e.g., Total Acres * Units per Acre)
New_MF_DU	Dwelling units	New multi-family dwelling units	New_MF_LU * Percentage of Multi-Family Density based on assigned Placetype (e.g., Total Acres * Units per Acre)
New_Tot_DU	Dwelling units	Total new residential dwelling units	New_SF_DU + New_MF_DU
New_SF_Pop	People	New single-family population	New_SF_DU * Single-Family Occupancy Rate based on assigned Placetype (e.g., Total dwelling units * Occupancy per dwelling unit)
New_MF_Pop	People	New multi-family population	New_MF_DU * Single-Family Occupancy Rate based on assigned Placetype (e.g., Total dwelling units * Occupancy per dwelling unit)
New_Tot_Pop	People	Total new residential population	New_SF_Pop + New_MF_Pop
New_COM_SF	Square feet	New commercial square footage	New_COM_LU * Commercial Floor-Area-Ratio (FAR) based on assigned Placetype * 43560
New_OFF_SF	Square feet	New office square footage	New_OFF_LU * Office Floor-Area-Ratio (FAR) based on assigned Placetype * 43561
New_IND_SF	Square feet	New industrial square footage	New_IND_LU * Industrial Floor-Area-Ratio (FAR) based on assigned Placetype * 43562
New_INST_SF	Square feet	New institutional square footage	New_INST_LU * Institutional Floor-Area-Ratio (FAR) based on assigned Placetype * 43563
New_COM_Emp	Employees	New commercial employees	(New_COM_SF / 1000) * Commercial employees per 1000 square feet based on assigned Placetype
New_OFF_Emp	Employees	New office employees	(New_OFF_SF / 1000) * Office employees per 1000 square feet based on assigned Placetype

New_IND_Emp	Employees	New industrial employees	$(\text{New_IND_SF} / 1000) * \text{Industrial employees per 1000 square feet based on assigned Placetype}$
New_INST_Emp	Employees	New institutional employees	$(\text{New_INST_SF} / 1000) * \text{Institutional employees per 1000 square feet based on assigned Placetype}$
PER_SF_REDEV	Percentage	Percent of redevelopable land that is single-family residential	
RDVper_NSF	Percentage	Redevelopable land percentage that is non-single-family (aka X% of NSF land is considered to be redeveloped)	$(\text{REDV_UNCO} * (1 - \text{PER_SF_REDEV})) / (\text{COM_EXLU} + \text{OFF_EXLU} + \text{INST_EXLU} + \text{IND_EXLU} + \text{MF_EXLU} + \text{ROW_EXLU} + \text{AGR_EXLU})$
RDVper_SF	Percentage	Redevelopable land percentage that is single-family (aka X% of SF land is considered to be redeveloped)	$(\text{REDV_UNCO} * \text{PER_SF_REDEV}) / \text{SF_EXLU}$
Tot_SF_LU	Acres	Total buildout Single-Family Land Use	$\text{SF_EXLU} + \text{New_SF_LU} - (\text{SF_EXLU} * \text{RDVper_SF})$
Tot_MF_LU	Acres	Total buildout Multi-family Land Use	$\text{MF_EXLU} + \text{New_MF_LU} - (\text{MF_EXLU} * \text{RDVper_NSF})$
Tot_COM_LU	Acres	Total buildout Single-Family Land Use	$\text{COM_EXLU} + \text{New_COM_LU} - (\text{COM_EXLU} * \text{RDVper_NSF})$
Tot_OFF_LU	Acres	Total buildout Single-Family Land Use	$\text{OFF_EXLU} + \text{New_OFF_LU} - (\text{OFF_EXLU} * \text{RDVper_NSF})$
Tot_INST_LU	Acres	Total buildout Single-Family Land Use	$\text{INST_EXLU} + \text{New_INST_LU} - (\text{INST_EXLU} * \text{RDVper_NSF})$
Tot_IND_LU	Acres	Total buildout Single-Family Land Use	$\text{IND_EXLU} + \text{New_IND_LU} - (\text{IND_EXLU} * \text{RDVper_NSF})$
Tot_AGR_LU	Acres	Total buildout Single-Family Land Use	$\text{AGR_EXLU} - (\text{AGR_EXLU} * \text{RDVper_NSF})$
Tot_OPN_LU	Acres	Total buildout Single-Family Land Use	$\text{PKOPN_EXLU} + \text{New_OPN_LU}$
Tot_ROW_LU	Acres	Total buildout Single-Family Land Use	$\text{ROW_EXLU} + \text{New_ROW_LU} - (\text{ROW_EXLU} * \text{RDVper_NSF})$
Tot_SF_DU	Dwelling units	Total single family dwelling units	$[\text{Attribute:SF_EXDU}] + [\text{Attribute:New_SF_DU}] - \text{IfError} ([\text{Attribute:SF_EXDU}] * ([\text{Attribute:RD_LND_SF}] / [\text{Attribute:SF_EXLU}]), 0$

Tot_MF_DU	Dwelling units	Total multi-family dwelling units	[Attribute:MF_EXDU] + [Attribute:New_MF_DU] - IfError (([Attribute:MF_EXDU] * (([Attribute:MF_EXLU] / ([Attribute:COM_EXLU] + [Attribute:OFF_EXLU] + [Attribute:INST_EXLU] + [Attribute:IND_EXLU] + [Attribute:MF_EXLU] + [Attribute:ROW_EXLU])) * [Attribute:RD_LND_NSF]) / [Attribute:MF_EXLU])), 0)
Tot_DU_BO	Dwelling units	Total dwelling units	[Attribute:Tot_SF_DU] + [Attribute:Tot_MF_DU]
Tot_SF_POP	Population	Total single family Population	[Attribute:SF_EXPOP] + [Attribute:New_SF_POP] - IfError ([Attribute:SF_EXPOP] * ([Attribute:RD_LND_SF] / [Attribute:SF_EXLU]), 0)
Tot_MF_POP	Population	Total multi-family Population	[Attribute:MF_EXPOP] + [Attribute:New_MF_POP] - IfError (([Attribute:MF_EXPOP] * (([Attribute:MF_EXLU] / ([Attribute:COM_EXLU] + [Attribute:OFF_EXLU] + [Attribute:INST_EXLU] + [Attribute:IND_EXLU] + [Attribute:MF_EXLU] + [Attribute:ROW_EXLU])) * [Attribute:RD_LND_NSF]) / [Attribute:MF_EXLU])), 0)
Tot_POP_BO	Population	Total Population	[Attribute:Tot_SF_POP] + [Attribute:Tot_MF_POP]
Tot_COM_EMP	Employees	Total commercial employment	([Attribute:New_COM_SF] / 1000) * Get ([Attribute:HC_Buildout_Ptype_Lookup:COM_OCC], Where ([Attribute:HC_Buildout_Ptype_Lookup:PLACETYPE] = [Attribute:PType]))
Tot_OFF_EMP	Employees	Total office employment	([Attribute:New_OFF_SF] / 1000) * Get ([Attribute:HC_Buildout_Ptype_Lookup:OFF_OCC], Where ([Attribute:HC_Buildout_Ptype_Lookup:PLACETYPE] = [Attribute:PType]))
Tot_INST_EMP	Employees	Total institutional employment	([Attribute:New_INST_SF] / 1000) * Get ([Attribute:HC_Buildout_Ptype_Lookup:INST_OCC], Where ([Attribute:HC_Buildout_Ptype_Lookup:PLACETYPE] = [Attribute:PType]))
Tot_IND_EMP	Employees	Total industrial employment	([Attribute:New_IND_SF] / 1000) * Get ([Attribute:HC_Buildout_Ptype_Lookup:IND_OCC], Where ([Attribute:HC_Buildout_Ptype_Lookup:PLACETYPE] = [Attribute:PType]))
Tot_EMP_BO	Employees	Total employment	[Attribute:Tot_COM_EMP] + [Attribute:Tot_off_EMP] + [Attribute:Tot_INST_EMP] + [Attribute:Tot_IND_EMP]
SF_POP_CAP	Population	Total capacity for single family population growth.	[Tot_SF_Pop] - [SF_EXPOP]
MF_POP_CAP	Population	Total capacity for multi-family population growth.	[Tot_MF_Pop] - [MF_EXPOP]

TOT_POP_CAP	Population	Total capacity for multi-family population growth.	[SF_POP_CAP] + [MF_POP_CAP]
COM_EMP_CAP	Employees	Total capacity for commercial employment growth.	[Tot_COM_Emp] - [COM_EXEMP]
OFF_EMP_CAP	Employees	Total capacity for office employment growth.	[Tot_OFF_Emp] - [OFF_EXEMP]
INST_EMP_CAP	Employees	Total capacity for institutional employment growth.	[Tot_INST_Emp] - [INST_EXEMP]
IND_EMP_CAP	Employees	Total capacity for industrial employment growth.	[Tot_IND_Emp] - [IND_EXEMP]
NIND_EMP_CAP	Employees	Total capacity for non-industrial employment growth.	[COM_EMP_CAP] + [OFF_EMP_CAP] + [IND_EMP_CAP]
Allocation			
SUIT_RES	Numeric value	Residential suitability score.	Get ([Attribute:SuitabilityRank:SuitRes], Where ([Attribute:SuitabilityRank:CV_ID] = [Attribute:CV_ID]))
SUIT_NIND	Numeric value	Commercial suitability score.	Get ([Attribute:SuitabilityRank:SuitCom], Where ([Attribute:SuitabilityRank:CV_ID] = [Attribute:CV_ID]))
SUIT_IND	Numeric value	Industrial suitability score.	Get ([Attribute:SuitabilityRank:SuitInd], Where ([Attribute:SuitabilityRank:CV_ID] = [Attribute:CV_ID]))
Alctd_Dev_Total	Acres	Total amount of developable land allocated.	[Attribute:DEV_UNCON] * [Attribute:Alctd_PerPoly_Total]
Alctd_ReDev_Total	Acres	Total amount of redevelopable land allocated.	[Attribute:REDEV_UNCON] * [Attribute:Alctd_PerPoly_Total]
Alctd_Total_Acres	Acres	Total land allocated.	[Attribute:Alctd_Dev_Total] + [Attribute:Alctd_ReDev_Total]
Alctd_PerPoly_Res	Percentage	Percentage of polygon that has allocated residential population.	IfThenElse (If ([Attribute:TOT_POP_CAP] = 0), Then (-1), If ([Attribute:AlctdGrowth_Total_RES] = 0), Then (0), Else (([Attribute:AlctdGrowth_Total_RES] / [Attribute:TOT_POP_CAP]) * 100))

Alctd_PerPoly_Com	Percentage	Percentage of polygon that has allocated commercial employment.	IfThenElse (If ([Attribute:NIND_EMP_CAP] = 0), Then (-1), If ([Attribute:AlctdGrowth_Total_NON] = 0), Then (0), Else (([Attribute:AlctdGrowth_Total_NON] / [Attribute:NIND_EMP_CAP]) * 100))
Alctd_PerPoly_Ind	Percentage	Percentage of polygon that has allocated industrial employment.	IfThenElse (If ([Attribute:IND_EMP_CAP] = 0), Then (-1), If ([Attribute:AlctdGrowth_Total_IND] = 0), Then (0), Else (([Attribute:AlctdGrowth_Total_IND] / [Attribute:IND_EMP_CAP]) * 100))
Alctd_PerPoly_Total	Percentage	Weighted average of total allocation.	IfThenElse (If ([Attribute:TOT_POP_CAP] = 0), Then (-1), If ([Attribute:AlctdGrowth_Total_RES] = 0), Then (0), Else (([Attribute:AlctdGrowth_Total_RES] / [Attribute:TOT_POP_CAP]) * 100))
Alctd_PerTotal_Res	Percentage	Percentage of polygon that has total allocated population.	If ([Attribute:AlctdGrowth_Total_RES] = 0, Then (0), Else (([Attribute:AlctdGrowth_Total_RES] / Sum ([Attribute:BuildoutResultsForAllocation:TOT_POP_CAP])) * 100))
Alctd_PerTotal_Com	Percentage	Percentage of polygon that has total allocated non-industrial employment.	If ([Attribute:AlctdGrowth_Total_NIND] = 0, Then (0), Else (([Attribute:AlctdGrowth_Total_NIND] / Sum ([Attribute:BuildoutResultsForAllocation:NIND_EMP_CAP])) * 100))
Alctd_PerTotal_Ind	Percentage	Percentage of polygon that has total allocated industrial employment.	If ([Attribute:AlctdGrowth_Total_IND] = 0, Then (0), Else (([Attribute:AlctdGrowth_Total_IND] / Sum ([Attribute:BuildoutResultsForAllocation:IND_EMP_CAP])) * 100))
POP_DEC		Decline in population associated with redevelopment.	IfError (IfThenElse (If ([Attribute:TOT_POP_CAP] < 0), Then ([Attribute:TOT_POP_CAP] * [Attribute:Alctd_PerPoly_Total]), Else (0)), -1)
NIND_DEC		Decline in non-industrial employment associated with redevelopment.	IfError (IfThenElse (If ([Attribute:NIND_EMP_CAP] < 0), Then ([Attribute:NIND_EMP_CAP] * [Attribute:Alctd_PerPoly_Total]), Else (0)), -1)
IND_DEC		Decline in industrial employment associated with redevelopment.	IfError (IfThenElse (If ([Attribute:IND_EMP_CAP] < 0), Then ([Attribute:IND_EMP_CAP] * [Attribute:Alctd_PerPoly_Total]), Else (0)), -1)
AlctdGrowth_1_RES	People	First iteration of population allocation.	CommunityViz proprietary formula.
AlctdGrowth_1_NON	Jobs	First iteration of non-industrial	CommunityViz proprietary formula.

		employment allocation.	
AlctdGrowth_1_IND	Jobs	First iteration of industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_2_RES	People	Second iteration of population allocation.	CommunityViz proprietary formula.
AlctdGrowth_2_NON	Jobs	Second iteration of non-industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_2_IND	Jobs	Second iteration of industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_3_RES	People	Third iteration of population allocation.	CommunityViz proprietary formula.
AlctdGrowth_3_NON	Jobs	Third iteration of non-industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_3_IND	Jobs	Third iteration of industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_4_RES	People	Fourth iteration of population allocation.	CommunityViz proprietary formula.
AlctdGrowth_4_NON	Jobs	Fourth iteration of non-industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_4_IND	Jobs	Fourth iteration of industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_5_RES	People	Fifth iteration of population allocation.	CommunityViz proprietary formula.
AlctdGrowth_5_NON	Jobs	Fifth iteration of non-industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_5_IND	Jobs	Fifth iteration of industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_Previous_RES	People	Population allocation in the prior model run.	CommunityViz proprietary formula.

AlctdGrowth_Previous_NON	Jobs	Non-industrial employment allocation in the prior model run.	CommunityViz proprietary formula.
AlctdGrowth_Previous_IND	Jobs	Industrial employment allocation in the prior model run.	CommunityViz proprietary formula.
AlctdGrowth_Total_RES	People	Total population allocation.	CommunityViz proprietary formula.
AlctdGrowth_Total_NON	Jobs	Total non-industrial employment allocation.	CommunityViz proprietary formula.
AlctdGrowth_Total_IND	Jobs	Total industrial employment allocation.	CommunityViz proprietary formula.
Remaining_Capacity_RES		Remaining population capacity after allocation is complete.	CommunityViz proprietary formula.
Remaining_Capacity_NON		Remaining non-industrial employment capacity after allocation is complete.	CommunityViz proprietary formula.
Remaining_Capacity_IND		Remaining industrial employment capacity after allocation is complete.	CommunityViz proprietary formula.