APPENDIX A

TUKWILA CURRENT AND FUTURE SPACE NEEDS

The City of Tukwila is conducting a Facility Needs Assessment and Feasibility Study to plan for the long-term sustainability of the City's facilities, optimize organizational efficiencies, and improve public safety. Phase 1 of the project includes establishing an evidence-based assessment of the City's current facility needs and projected needs thorough 2040.

This analysis presents a planning-level assessment of the City of Tukwila's current facility needs that:

- Assesses total gross square feet needed to support current City functions based on an optimized interior plan layout. Constraints of current buildings layouts or other factors may increase the planning target for some departments.
- Assumes a standalone function. Future project phases will establish colocation opportunities that may reduce the necessary space to accommodate circulation, building mechanics, or other non-rentable space.
- Supports future evaluations of current facility and site suitability.

A list of current City facilities is presented in **Appendix I.**

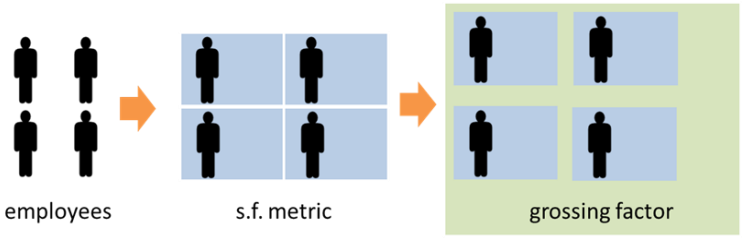
APPROACH & PRELIMINARY SPACE NEEDS ESTIMATES

Different city functions have different facility needs. This analysis estimates current facilities needs and projected facility needs according to workgroups delineated in collaboration with City staff. The analysis uses two approaches to estimate space needs. The first is a staffing-based approach that uses established evidence-based space metrics. If established metrics are not available, we examined a sample of similar facilities to determine a suitable metric. The second is a program-based approach using identified program elements or similar facilities in other jurisdictions.

STAFFING-BASED ESTIMATES

Space needs of nine workgroups were estimated based on standard space allocations and current staffing counts. Error! Reference source not found. illustrates the approach with descriptions of calculation inputs following the diagram.

FIGURE 1: STAFFING-DRIVEN ESTIMATES APPROACH



Notes on inputs and assumptions:

- **Employees.** Employee counts are based on the current (2013/4) budget. Executive staff counts of current staff were corroborated through payroll records.
- **Sq. ft. metric.** A space metric is a **net** unit of square footage of space assigned to a single individual. It is used in conjunction with a **grossing factor** to develop the gross square footage of a building.
- **Grossing factor.** The total area of a building (area enclosed by exterior walls) is a combination of assignable (net) space and non-assignable space (building structure, mechanical/electrical service space, and vertical circulation for example). To arrive at a gross area the net area is multiplied by a "grossing factor", yielding the total building area. This factor is generally determined by the building function being served. Generally, a building of low complexity (warehouse space) will have a low multiplier (1.16 for example), and higher complexity (laboratory space), will have a higher multiplier (1.8 to 2.0). The use of 1.5 is a professional determination and judged to be adequately conservative for the nature of spaces under examination.

The Department of Enterprise Services for the State of Washington developed established space planning standards in 2009 including a 215 sq. ft. per person metric for predesign scopes of services for State funded projects. It is a measure designed to provide space at the lowest possible cost in sufficient quantities and qualities for programs to function. The 215 sq. ft. metric is a planning average and assumes a balance of approximately 90% cubicles and 10% enclosed office spaces. **Figure 1** presents a prototypical 30,000 sq. ft. (gross) office layout with permanent occupied workspace seating for approximately 85 people. This plan shows approximately 352 sq. ft. (gross) per person, slightly less efficient than our metric which yields 322 sq. ft. (gross) per person.

FIGURE 1: PROTOTYPICAL OFFICE SPACE LAYOUT

- **Police metric:** Police services are highly variable by agency and do not lend themselves to an industry standard metric. To develop a net space metric, the architectural team interviewed police department personnel and reviewed current services based on a space checklist developed by the International Association of Chiefs of Police (IACP). The interviews identified specific functions to be accounted for in space needs planning.

To identify a suitable metric, the analysis draws from the findings by Revenue & Cost Specialists, LLC, Fullerton California in a review of space utilization by 23 police stations with space resources ranging from 2,000 to 150,000 sq. ft. The study found that the average gross square footage was 347 sq. ft. per person. In addition to reviewing current space use, the study qualitatively assessed the adequacy of space. Policing agencies with less than 250 sq. ft. per person reported routine and specific dysfunction from space constraints. As space use exceeded 250 sq. ft. per person and above, agencies more frequently reported that space was adequate or manageable, though many *could use more* space. Based on these two inputs, the analysis recommends 240 sq. ft. (net) per staff count (or 360 sq. ft. gross when using a 1.5 multiplier) to arrive at an approximate facility size to house the identified program spaces. Exceeding the 347 sq. ft. recommended by the study is a professional judgment based on the number of functions identified by city staff.

Figure 2 presents the preliminary Employee-Driven Estimates for space needs based on the assumptions discussed above.

FIGURE 2: PRELIMINARY STAFFING-BASED ESTIMATES

	Counts	Gross S.F. Need		
Department	2013 Employees	Metric (s.f.)	Grossing Factor	Current Need (s.f.)
DCD	28	215	1.5	9,030
Finance	12	215	1.5	3,870
Fire (administrative)	14	215	1.5	4,515
Human Resources	4	215	1.5	1,290
Information Technology	8	215	1.5	2,580
Mayors Office	17	215	1.5	5,483
Parks & Recreation Administration	27	215	1.5	8,708
Public Works (admin.)	22	215	1.5	7,095
Police	92	240	1.5	33,120
Total	**224**			**75,690**

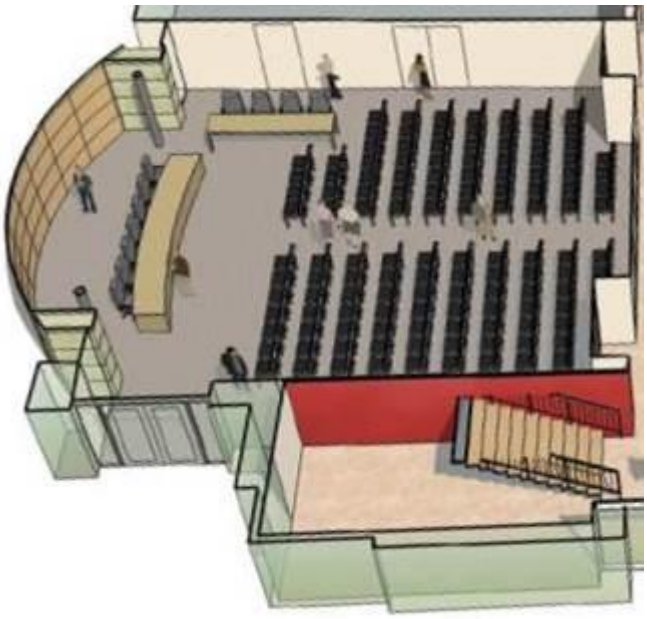
PROGRAM-BASED ESTIMATES

Prescriptive estimates are based on comparable facilities use and program design. This approach was employed for the following uses:

COUNCIL CHAMBERS

The space needs estimate for Council Chambers involved an analysis of the facilities at Burien, SeaTac, Federal Way and Renton as comparables. The Burien Council Chambers, depicted below, has an estimated floor area (of the chambers) of 2,100 sq. ft. and seating for 128 in the configuration illustrated. A standalone facility of the same configuration would require the 1.5 grossing factor for a total of 3,150 sq. ft., or 25 sq. ft. per dedicated seat.

FIGURE 3: BURIEN CITY HALL COUNCIL CHAMBERS



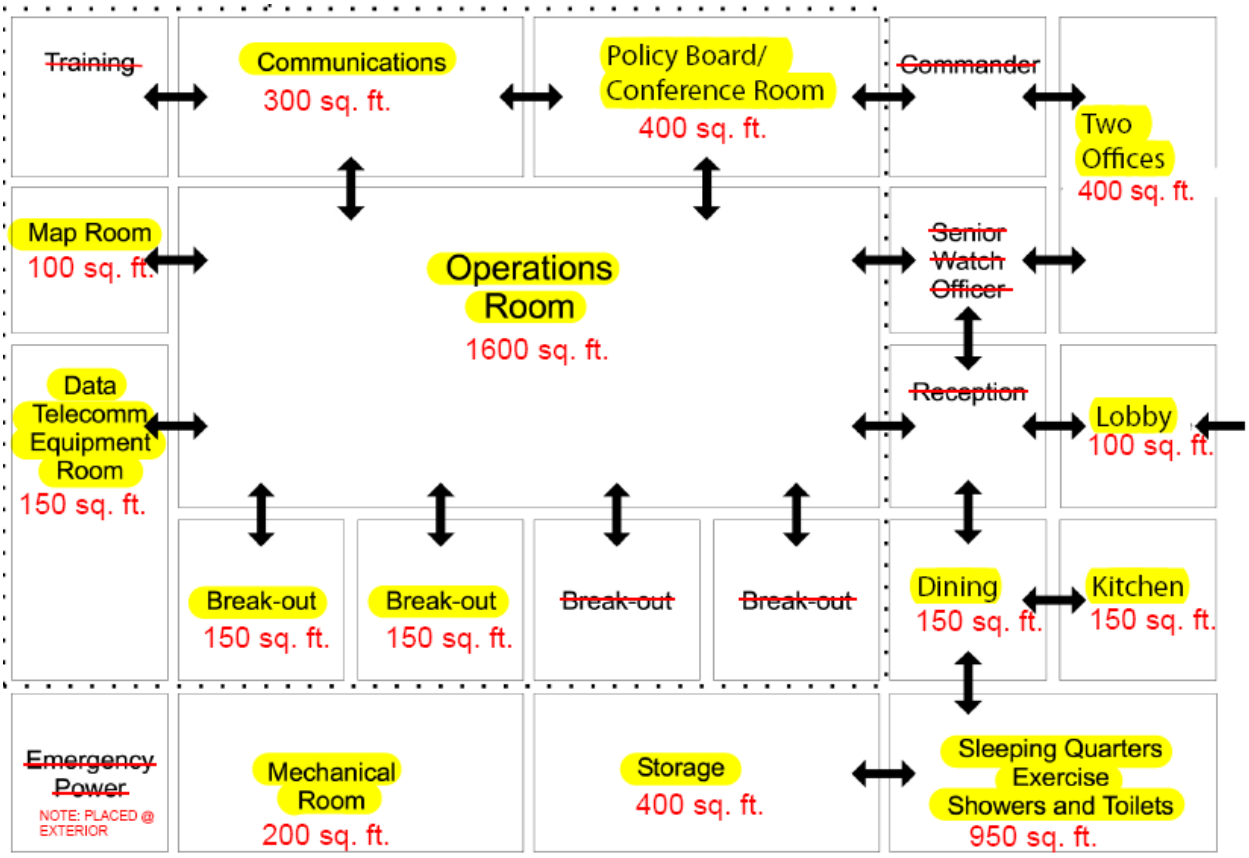
Tukwila's current council chamber has dedicated seating for 72 (6 rows of 12 seats). City staff report that current seating is insufficient for special presentations or other meetings holding significant public interest and that seating for 100 would better meet the City's current needs. For planning purposes, the study uses a predesign target of seating for 128 and assumes a "standalone" space, resulting in a planning target of 3,150 gross sq. ft.

In addition to chamber space of 3,150 the council chamber estimate includes office space for 4 using the 215 sq. ft. average metric and 1.5 grossing factor amounting to a pre-design estimate of 4,440 sq. ft. for council chambers. This allowance is expected to diminish in the next planning phase as department spaces are collocated.

EMERGENCY OPERATIONS CENTER

The City of Tukwila does not currently have a dedicated Emergency Operations Center (EOC). To calculate a predesign space allowance for an EOC, the analysis uses a prototypical space diagram developed by Homeland Security. City ECO management personnel reviewed the prototypical space diagram (depicted below) to identify necessary components for the City of Tukwila. The predesign space needs estimate is based on the prototypical layout illustrated in **Figure 4** and the maximum personnel count expected for an emergency. The total net square footage is 5,202 sq. ft. (the sum of space estimates indicated in red). The greater specificity provided by the prototypical plan allows less allowance for circulation and structural space needs. The analysis is based on a multiplier of 1.16 (as opposed to 1.5 for general office space) resulting in 6,032 gross sq. ft. As with Council space, it is expected that collocation will lead to a smaller square footage allowance later in the process.

FIGURE 4: PROTOTYPICAL EMERGENCY OPERATIONS SUITE, INDICATING USE AND SPACE NEEDS



PARKS & RECREATION MAINTENANCE

The current space used by Parks and Recreation maintenance functions is considered adequate for the City's current needs. The predesign space needs analysis uses the current square footage of 7,300 sq. ft. as an estimate.

PUBLIC WORKS (SHOPS)

An expert architectural review of the Public Works space at both the Minkler Shops and at George Long concluded that the space is deficient solely by inadequacies in the plan (the layout of the buildings, rather than building size). In comparison to modern shop facilities, the Minkler plan is highly inefficient. The layout consists of a series of short span, long serpentine spaces that have very little flexibility and inhibit any real reconfiguration or logical planned expansion for growth. In particular, the storage bins are designed in a long "shotgun" style without opportunities for conversion unless very awkward interior circulation patterns are used. An ordered rectangle space would make gains through large clear span spaces allowing lots of opportunity for both reconfiguration and expansion. To estimate current space needs, the analysis applies a multiplier on current rentable (net) space of 1.5 at Minkler and 1.1 to George Long. The existing square footage grossed up by the associated multiplier will account for properly designed circulation space, centrally located mechanical/ electrical space, and vertical transportation space (stairs) to enable efficient use of second story development. Site

planning both facilities together in one building envelop may make addition gains in efficiency, as well as and considering two story options for office spaces, lockers, kitchens, or diagnostics spaces as done by more contemporary designs.

FIRE OPERATIONS

The fire operations space needs estimates are based on an average station size of 9,828 sq. ft. This figure is based on the combined average of three VRFA station sizes with staffing that is equivalent to Tukwila's current stations, as well as eight recent replacement stations in the City of Seattle that match the designated staff baseline of Tukwila's current stations. None of the comparable stations include bays for on-site vehicle maintenance or specialized training facilities such as a training tower.

COURTS

The program-based method used for the Courts calculation is taken from the "U.S. Courts Design Guide, 2007 Edition." It delineates the component parts and relative size for different models of courtroom design, as a guide to the planning process.

Figure 5 presents the preliminary prescriptive estimates for Tukwila facilities.

FIGURE 5: PRELIMINARY PROGRAM-BASED ESTIMATES

		Gross S.F. Need
	2013 Employees	Current Need (s.f.)
Council	8	4,440
EOC		6,032
Parks & Recreation Maintenance	10	7,300
Public Works (shops)	43	62,919
Fire (operations)	54	43,826
Courts	11	5,029
Total	**126**	**129,546**

FUTURE SPACE NEEDS PROJECTIONS

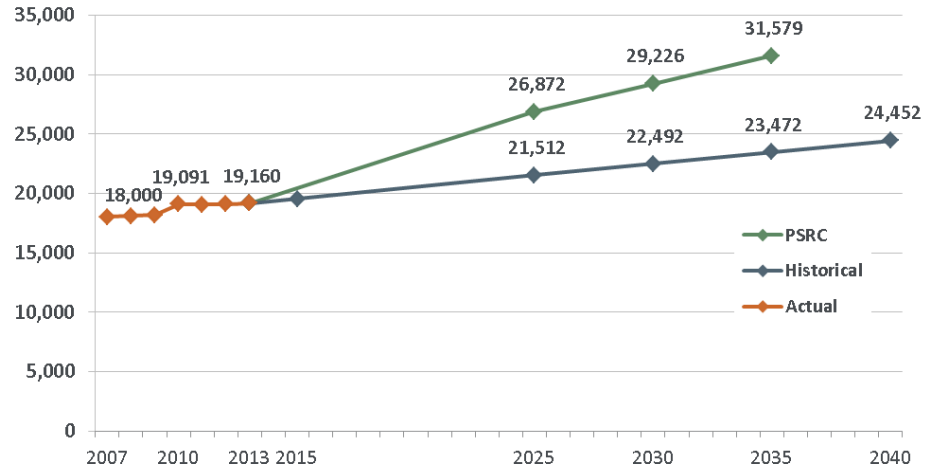
To determine a planning-level estimate of future space needs, the current needs methodology was updated based on preliminary planning estimates of future staffing levels.

The main driver in estimating future staffing levels are population and employment growth. We tested two sources of growth projections. The first is BERK's analysis of historical growth trends conducted in 2012 for a baseline fiscal assessment of the City's operating budget. The historical data came from the 2007 King County Buildable Lands report on residential and commercial development from 1996 to 2005. These data are from a "normal" market period, and do not include the downturn experienced in the recent recession. Residential growth is forecasted at slightly higher rate than the 10-year annual averages based on the professional opinion of City staff about likely growth and known developments. Commercial growth is forecasted similar to the 10-year average, though assumes a slightly higher ratio of retail/office space compared to industrial space.

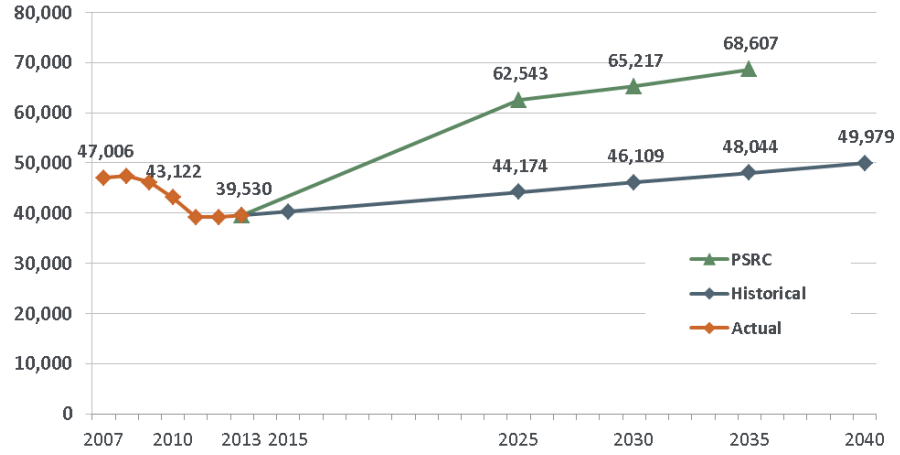
The second forecast is PSRC's Land Use Targets, representing the allocation of the City's adopted growth targets. This forecast represents the number of people and jobs the City is required to plan for and is more closely tied to the development capacity in the City's comprehensive plan. **Figure 6** presents a comparison of the two population projections.

FIGURE 6: COMPARISON OF HISTORICAL-BASED AND PSRC FORECASTS, 2013 – 2040

POPULATION



EMPLOYMENT



	2013 Estimate	2035 Projection	2013 - 2015 Change	% Change
Population	19,160			
Historicals based projections (2012)		23,472	4,312	22.51%
PSRC LUT Forecasts		31,579	12,419	64.82%
		Difference	*8,107*	*42.31%*
Jobs	39,530			
Historicals based projections (2012)		48,044	8,514	21.54%
PSRC LUT Forecasts		68,607	29,077	73.56%
		Difference	*20,563*	*52.02%*

Source: BERK analysis of development, 2012; PSRC Land Use Target Forecasts, July 2013

PSRC forecasts a more significant rate of growth than Tukwila has experienced in the recent past including 8,107 more residents and 20,563 more jobs in Tukwila by 2035. The scale of difference between the two projections will be a consideration in the development-planning phase of the project.

For projecting future space needs, this analysis uses the historical-based projections and a planning horizon of 2040 to align with regional planning efforts. The projections assume an increase of 5,292 residents and 10,449 jobs between 2013 and 2040, as presented in **Figure 7**.

FIGURE 7: GROWTH ASSUMPTIONS FOR CITY OF TUKWILA, 2013 – 2040

	2013	2040	Change	Total Growth	Compound Annual Growth
Residents	19,160	24,452	5,292	27.62%	0.91%
Employment	39,530	49,979	10,449	26.43%	1.07%
Residents + jobs	58,690	74,431	15,741	26.82%	1.09%

The gross level demand drivers (population and jobs growth) were adjusted to reflect actual service drivers by department and reasonable estimates of the economies of scale in staffing. For each department, a growth driver and an elasticity factor were selected. The **growth driver** determines the basis for future staffing levels, while the **elasticity factor** estimates the degree to which future growth in the driver relates to growth in staffing. For example, in police services the underlying driver is the growth in the sum of residents and jobs, acting as a good proxy for overall demand in service calls. However, there are a number of functions within the department which are not significantly affected by changes in call volume, such as administrative functions and senior chain of command positions. As a result, an elasticity factor of 0.8 is used to reduce the impact of the underlying driver on overall staffing. In effect, this factor suggests that approximately 80% of the staffing will be affected by the underlying driver, while 20% would remain fixed.

At this level of analysis, it should be emphasized that these are very high level planning estimates and that the primary goal is to develop a sound basis for facility planning which reasonably accounts for some of the key factors affecting staffing demand by department. This is not intended to be an actual staffing forecast, since staffing levels will ultimately be determined by factors beyond the scope of this analysis such as changes in technology, policy decisions regarding level-of-service and future budget considerations. Given this, the departmental analysis uses the following growth driver assumptions:

- **Residents + Jobs.** Future service demands in the majority of the direct service departments are assumed to be driven by growth in residents and jobs. While the underlying driver is the same for each, the elasticity factors vary from 0.8 for police and fire to 0.5 for the other departments reflecting a greater ability to achieve economies of scale in these functions.
- **Residents.** Parks and recreation services were assumed to be driven primarily by resident population growth with an elasticity factor of 0.5 to reflect that a key constraint to growth will be the availability of facilities from which to offer recreation services.

- **Constant.** At the scale of growth envisioned in this analysis, it is assumed that both the Council and Mayor's Office staffing will remain constant over the planning horizon.
- **Overall staffing.** Human resources and Information Technology are driven by changes in overall city staffing, reflecting that these are primarily internal service functions. Human resources was assigned a 0.5 elasticity factor, while IT was given a 0.8 elasticity factor to reflect a greater variable cost for IT services.
- **Departmental Staffing Growth.** Some of the administrative functions of specific departments are called out separately (Fire & Public Works) and so these positions are driven by the operational staffing levels within these departments. Both assume an elasticity factor of 0.5.

For each department the **Growth Factor** represents the percent change in the growth driver. For example, the growth in residents is expected to be 22.51%, thus the growth factor is listed as .23.

Figure 8 presents the preliminary 2035 staffing estimate analysis, showing a growth factor based on the assumed growth driver and elasticity factor by department.

FIGURE 8: FUTURE SPACE NEEDS ESTIMATES

Department	Current Staffing	Growth Factor	Elasticity Factor	Projected 2040 Staffing	Growth Driver
Council	8.0	0.00	1.00	8.0	Constant
Courts	11.0	0.27	0.50	12.5	Residents + Jobs
DCD	28.0	0.27	0.50	32.0	Residents + Jobs
Finance	12.0	0.27	0.50	13.5	Residents + Jobs
Fire (operations)	54.0	0.27	0.80	65.5	Residents + Jobs
Fire (administrative)	14.0	0.21	0.50	15.5	Fire Operations
Human Resources	4.0	0.15	0.50	4.5	Overall staffing
Information Technology	8.0	0.15	0.80	9.0	Overall staffing
Mayors Office	17.0	0.00	1.00	17.0	Constant
Parks & Recreation Administration	27.0	0.28	0.50	30.5	Residents
Parks & Recreation Maintenance	10.3	0.00	0.50	10.5	Parks Facilities
Police	92.0	0.27	0.80	111.5	Residents + Jobs
Public Works (admin.)	22.0	0.14	0.50	23.5	Pub Works Ops
Public Works (shops)	43.0	0.27	0.50	49.0	Residents + Jobs
Total	**350.25**			**402.50**	

Source: BERK, 2013

Figure 9 presents estimated future space needs determined by applying the current space needs methods to the future staffing levels. The staffing-based estimates are a straightforward application of the space per employee method, while the program-based analysis determines space needs by applying the employee ratios established in the current needs analysis to the future staffing levels for these functions.

FIGURE 9: PRELIMINARY 2040 SPACE NEEDS ESTIMATES

Staffing-based Estimates

Department	Counts: 2040 Employees	Gross S.F. Need: Metric (sq. ft.)	Gross S.F. Need: Grossing Factor	Gross S.F. Need: Future Need (sq. ft.)
DCD	32.0	215	1.5	10,320
Finance	13.5	215	1.5	4,354
Fire (administrative)	15.5	215	1.5	4,999
Human Resources	4.5	215	1.5	1,451
Information Technology	9.0	215	1.5	2,903
Mayors Office	17.0	215	1.5	5,483
Parks & Recreation Administration	30.5	215	1.5	9,836
Public Works (admin.)	23.5	215	1.5	7,579
Police	111.5	240	1.5	40,140
Subtotal - Employee Driven	**257.0**			**87,064**

Program-based Estimates

	Counts: 2040 Employees	Gross S.F. Need: Current Ratio	Gross S.F. Need: Future Need (sq. ft.)
Council	8.0	555.0	4,440
EOC			6,032
Parks & Recreation Maintenance	10.5	712.2	7,478
Public Works (shops)	49.0	1,463.2	71,698
Fire (operations)	65.5	811.6	53,159
Courts	12.5	457.2	5,715
Subtotal - Prescriptive	**145.5**		**148,522**
Totals	**402.5**		**235,586**

Source: BERK, 2013