ANALYSIS OF CURRENT WEST RIDGE PARKING AND PROJECTIONS TO 2010

A report and recommendations by the Circulation and Parking Subcommittee

to the UAF Master Planning Committee

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SUMMARY

A new analysis of West Ridge parking on the UAF campus is carried out for a projected 5.7 percent per year growth in personnel on the West Ridge to the year 2010 (as per UAF's office of Planning, Analysis and Institutional Research). Under this assumption it is projected that in the year 2010 an absolute minimum additional 148,200 square feet of parking space (equivalent to 1.42 Elvey parking lots) will be required assuming existing parking areas remain unaffected. An immediate need for an additional 16,200 sq ft of parking area is also identified to ease existing congestion (i.e., to reduce the current utilization rate of 86 percent down to 80 percent.

There is a second projection for growth available (UA Statewide), suggesting that planning for growth is not yet well established. To support planning as projections become more mature, this work has been generalized for arbitrary rates of growth and the addition of necessary additional buildings to support the new personnel.

Six recommendations are made in this report. Any requirements for the North Campus area have not been included, pending development of a needs analysis by the North Campus Subcommittee.

1. INTRODUCTION

As part of data gathering for preparation of the UAF Circulation and Parking Plan (CPP) completed in 2003, the consultants from Kittelson & Associates, Inc., used earlier information from PAIR to conclude that the West Ridge (WR) area would experience a 40-percent increase in parking needs [2003 CPP, Table 3, p29] from 815 to 1150 vehicles by the year 2010: an increase of 335 vehicles.

Construction activities on the WR were in an exaggerated state of flux while the CPP was being written (e.g., beginning of utilidor, museum, and WRRB construction, loss of WR plaza-area parking, and prospects for the BIRD building), so it was later deemed prudent to carry out an internal study to see if those projections continued to appear valid and to also begin the task of suggesting specific and viable surface areas for the necessary parking.

To do this, new data were gathered, independent of the CPP and PAIR, and are assembled herein with a full descriptive text for the data and all assumptions applied to the analysis. These additions should greatly improve the chance that any follow-up study in several years' time will be able to duplicate the database and methodology used herein to more accurately test its predictions.

This study is divided into nine sections. To simplify the presentation, the underlying data and initial analysis work for Sections 2, 3, and 4 are placed in Appendices A, B, and C,

respectively. The quantitative data used in this exercise were gathered in the fall 2004 semester and are summarized in two tables. Table A1 (in Appendix A) is from an EXCEL spreadsheet that is divided into two parts: (a) Parking Lot Inventory and Analysis and (b) Building Personnel Inventory and Analysis. Table C1 (in Appendix C) summarizes parking lot occupancies on the WR during one week in November 2004. Projections are summarized in four line drawings and one graphic of the WR area.

2. WEST RIDGE PARKING LOT INVENTORY

UAF Parking Services provided all information on existing parking lots used in the analysis of Appendix A (unless otherwise noted). Several categories of special parking (e.g., handicapped, authorized/official, physical plant, loading zone, and gold decal) have been isolated from the total counts in order to concentrate initially on the need for regular decal parking spaces.

Regular parking comes in two types; powered and un-powered (electrical service). There is also illegal parking, but this is a compliance issue not addressed herein. Eight WR lots were initially used in this study, where, for the purposes intended herein, the eastern boundary of the WR is defined as the open space to the east of the Museum area, consistent with Figure 2 of the 2003 CPP. This means that the NSF parking area is not included.

In summary, the results detailed in Appendix A show that **on the WR there is a total of 735 regular parking spaces, 603 of which are powered.** An additional 94 spaces are currently used for special purposes (11 percent of the total spaces; 829). **No assumptions have been made to this point,** but a contentious issue of National Weather Service reserve parking in the Elvey parking lot (A1) is simply ignored.

A space multiplier M is defined to assist in the analysis, where M is the total lot area per car (lot area divided by number of regular parking spaces N) divided by the designed area per parking space (9'x20'=180 sq ft; per Ed Foster). For the WR areas evaluated in Appendix A, the average value of M is 3.8. That is, an additional 2.8 unit areas are needed to support one unit area assigned to a parking space. If the smallest and presumably least efficient lot (O'Neill North) is not included, and a lot substituted from another part of the campus that provides more efficient use of the space (from a supplemental measurement discussed in Appendix A), a reduced value of 3.1 is obtained for M.

In summary, the area needed in the powered lots to create and support a single parking space is 3.1-to-3.8 times the area provided for that single space, which is 180 sq ft. That is, 560-to-680 sq ft. per space. The M value for a parking lot depends upon the lot's design and intended overall purpose. The definition of M is such that it includes as burden the space needed for special parking. **There are no assumptions here, but incomplete data on surface areas.** The reader is encouraged to read Appendix A.

3. BUILDING PERSONNEL INVENTORY AND ANALYSIS

It was initially thought that a viable source of information on WR personnel would be readily available from the office of Campus and Space Planning and/or PAIR, but they are apparently not able to provide these data from their current databases. It also appears that no building location information is available in the BANNER system; the location field is said to be blank. **Hence, it is assumed that the current phone book provides an accurate headcount and reasonable location for all WR employees.** Much more detail is provided in Appendix B. The degree to which this assumption is in error directly reflects on all conclusions. **In summary, there were 939 employees on the WR in fall 2004.**

Additional data mining was necessary to determine the numbers of undergraduate and graduate students working on the WR. **In summary, there were 340 graduate TA and RA students and part-time undergraduate students working on the WR in fall 2004, 26.6 percent of the total.** The reader is encouraged to read Appendix B.

4. CURRENT PARKING

From what has been developed so far, 1,279 individuals have access to 735 regular decal parking spaces. The working assumption could then be that each of the 1,279 individuals working on the WR has the expectation of one parking space at any time (extreme peak loading), but this is neither necessary nor realistic. It is however reasonable for each individual working on the WR to assume access to parking within a reasonable distance of his or her work place. **For the purpose of this analysis it is assumed that people working on the WR park on the WR and are not forced to use shuttle-bus transportation from established parking on Lower Campus.** It should not preclude in the future shuttle transportation from other locations on the WR, however, just as occurs on Lower Campus.

The headcount of 1,279 individuals chasing the 735 decal parking spaces available on the WR indicates an ability to supply 57 percent of maximum possible demand. If it is assumed that the average parking demand is currently under control, then the 57-percent number is useful. If this number is greatly off, one might have expected riots in the streets; no such events are known to have occurred. However, this assumption should be tested to determine if there is adequate or inadequate parking currently.

A first clue to suggest that it is inadequate is that at extremely cold temperatures the un-powered parking spaces are in less demand (so there could well be insufficient powered parking spaces). Also, simple observations at random times show utilization rates near 100 percent and show increased use of illegal parking schemes throughout the WR. This suggests that compliance and individual needs are in conflict. It is recommended that parking lot utilization and compliance be monitored quantitatively to better understand these issues.

A quantitative verification that the parking lots are highly utilized was gained in a one-week survey of WR parking lots, as discussed in Appendix C. With the exception of Friday of the survey week, the effective total utilization on each day was at or exceeded the 85-percent high utilization target number used in Table 6 of the CPP [2003 CPP, p 32]. Also, four lots were full or nearly full on all days, and nearly all peak-loading ability was confined to the un-powered AHRB-W lot and the powered Sheenjek lot. **It can be concluded that the current parking lots on the WR are effectively full, with limited peak-loading reserve at the east and west ends.** The reader is encouraged to read Appendix C.

Recall that this heavy utilization of the available parking areas is in the face of the observations that parking is available for only 57 percent of the individuals who have the potential of working on the WR at any time. There is no known information with which to draw conclusions about alternate parking schemes that may be in play if indeed the demand is greater that provided by the number of available spaces. There is certainly adequate anecdotal information to suggest that parking is not adequate.

In the absence of other data, it appears that WR parking is at the least marginally acceptable. **It seems prudent at a minimum to recommend that the effective 86-percent utilization currently observed be lowered to 80-percent average utilization** in order to assist in the peak-loading difficulties. To proceed with this analysis it will be assumed that current parking can be adequate, on average, if the 80-percent utilization is implemented. This can be implemented herein if the 57 percent of the headcount is simply increased to 57*86/80 = 61 percent. **Hence the assumption is now made that adequate current parking is available when the number of regular parking spaces is 61 percent of WR headcount.** The consequence is that the current system is short by 4 percent, or 29 parking spaces. **Under the assumption of M=3.1 for parking lot design, this leads to an immediate increase in surface area of 16,200 sq ft, or nearly one-half of either the AHRB-E or -W lot.** The increased area should become part of an existing lot versus the creation of any more small lots.

5. PARKING PROJECTION TO 2010

As can best be determined, the approved CPP plan projection to 2010 is based upon a one-to-one relation between increasing headcount and parking demand. We will proceed with this assumption for a moment. The CPP projection of personnel to 2010 was made based on headcount projections obtained through discussions with personnel at PAIR. The projection for the WR from 2003 to 2010 was for a 40-percent growth [2003 CPP, Table 3, page 29]. Assuming a linear rate of increase over the seven years, the current headcount is to be increased by 34 percent over six years (we are one year into the seven years); 40 percent over 7 years leaves 5.7 percent/year over the last six years, where it is simply assumed that the first 5.7 percent increase has already occurred. The increased headcount on the WR is projected to be 435, which, as an example, is more than twice the maximum planned occupancy of the recently completed WRRB, which is 200.

Under the assumption of a one-to-one mapping, an increase of 34 percent in headcount translates to an increase of 34 percent in needed parking. That is, 435 additional spaces by 2010 in addition to the replacement of all spaces lost to any new construction. Applying the 11-percent additional space for special parking previously extracted, the number increases the demand to 483 spaces. Determination of surface area by means of the previously determined multiplier M=3.1-to-3.8 for the 435 spaces (as M carries the special parking as a burden) requires that the new parking lot(s) occupy surface areas of 243,000-to-298,000 sq. ft., or the area of 5.4-to-6.6 football fields (playing area only), or 2.3-to-2.9 Elvey-sized parking lots.

These are staggering numbers for which potential relief is gained only by attaching greater significance to the previously established observation that the current number of parking spaces may be adequate at 61 percent of the maximum headcount, and a design requirement that M not exceed 3.1. In this case, the demand falls to 148,200 sq ft, or 3.29 football fields, or 1.42 Elvey parking lots, as an absolute minimum need.

In summary, currently projected growth to 2010 indicates that the area or areas required for new parking (assuming no loss of current parking and an immediate increase as per Section 4) to create 483 regular and special needs parking spaces is no less than 1.42 Elvey-sized lots (in 148,200 sq ft), if and only if the lots are of efficient design (M~3.1). This lower limit assumes that currently WR parking will be adequate after the immediate addition of 29 parking spaces in 16,200 sq ft. The assumption that current parking is then adequate should still be tested. The need for M values greater than 3.1 would simply increase the required total area. For example, layout of the Elvey lot is complicated by the numerous support functions to provide access to IARC, GI, and WRRB; hence the appropriate term is Elvey-sized (for surface area) versus Elvey-like. The two AHRB powered lots may be better models, in terms of efficiency.

Based on random, casual faculty comments concerning current space issue and discussions with the office of Space Planning and Management, we feel it necessary to state that any assumption that no new facilities are required to support these projected increases in WR personnel is without foundation and is a recipe for failure. That is, 435 new hires from an assumed 5.7 percent-per-year growth rate cannot fit within existing buildings, so these projections are deficient in the absence of footprint demands for the requisite buildings. It is here where the tradeoffs pointed out in the UAF Campus Master Plan come to the fore, in that there is decreasing good ground for construction so the options include taller buildings, parking garages, or both, to preserve surface area. Other options are no growth (imposed limitations) or growth elsewhere on the campus.

6. NEW BUILDINGS AND THEIR IMPACT

The Museum is now scheduled for completion in the summer of 2005. Current planning includes 38 new museum staff parking spaces (powered), and a gravel pad for up to 86 visitor spaces (not powered) and 4 ADA-rated spaces. Movement of buses in the area will reduce the efficiency of design. Hence it appears that the museum will not contribute to

an increase in powered parking spaces for the winter months; just a gravel pad that will only offer some relief. The existing Museum parking numbers listed in Table A1 are small and probably incorporated into the new numbers given above. The overall Museum parking situation is too fluid for the true impacts to be evaluated at this time.

The BIRD building is currently under construction north of the Museum and east of Irving I/II, with completion in the summer of 2006. Current parking plans are for 15,700 sq ft, 20 parking spaces (M=4.4), and an occupancy of about 10 individuals. There is no plan here to provide other than for local access to this new building, but this does not preclude later extensions, to our knowledge, that would lead to a larger parking area and more efficient design. The presumption here is that new parking needs for this building are satisfied, but there is no contribution to the larger issue of parking on the WR. Construction of the State Virology Lab in this area would alter this assessment.

7. MORE GENERAL PROJECTIONS

More recent attempts to make projections into the future at the UA level have resulted in UA Statewide setting targets for research growth in funding. The basic numbers appear to be the following; FY04(estimated), $101M and FY09 (projected), $145M. That is, a $44M increase in research funding over 5 years, or an average rate of 7.5 percent per year. We are not aware of any attempt to convert these top-down drivers into increased demand for academic and research faculty, graduate students, and support staff, and from this headcount to increased demand for physical facilities. Both are necessary in order to project parking needs with any credibility.

An alternate means with which to end this study is to take that which was gleaned from earlier sections and apply the algorithm to an arbitrary percentage growth. This approach results in simple line plots of increased parking space needs and total parking lot size for any percent increase per year under a specific set of assumptions. For example, the increased headcount at 2010 for any percent growth per year (up to 8 percent) is shown in Figure 1. The 5.7- and 7.5-percent growth rates from PAIR and SW are explicitly inserted. The assumption here is that the SW targets result in proportionate increases in headcount.

Conversion to the lower-limit parking demand (61 percent of headcount) yields Figure 2. When a range of efficiencies for parking lot designs (M = 3.1 and 3.8) is acknowledged, the plots of Figure 3 become useful. Finally, if the areal footprints for the needed WRRB-like buildings are added (for the added personnel) at a rate of 20,000 sq ft per addition, one obtains the results shown in Figure 4.

These projected increases do not include the immediate need for 16,200 sq ft of new parking area for 29 vehicles.

8. FOOTPRINTS ON THE LANDSCAPE

Integral to effective future development of the WR area is a willingness to tackle the issue of the Tanana Loop completion as part of a comprehensive plan for future WR growth with adequate parking. The current one-at-a-time philosophy with little buildings (e.g., BIRD) works well in the short term but leaves the harder work for later administrations while perpetuating a level of decreased faculty efficiency through the ongoing need for movement from building to building as part of the workday. Additionally, there is the underlying foundation objectives of the UAF Campus Master Plan and its opposition to the continued existence and creation of yet more small and inefficient parking lots adjacent to every building as opposed to a more pedestrian-friendly campus with shuttle buses supporting parking at the fringes.

As a first step, it is worthwhile to simply illustrate the areal extent of the projected parking need on existing campus maps To do this, and since the parking needs have been quoted in units of an Elvey parking lot, three such lots of that area are superposed on a map of the WR area in Figure 5 to show some options for locations. Additionally, those lots are bounded by a conceptualized extension of the Tanana Loop Road that is somewhat related to early ideas previously discussed in the UAF Master Plan. Consideration of a route much closer to the Elvey and IARC buildings severely limits the options and could increase pressure to provide parking to the north of any Tanana Loop extension.

These are intended only to assist in grasping the magnitude of the spatial areas necessary for expanding parking. The equivalent of two WRRB buildings are also placed in the AHRB-W parking lot for illustration of the footprint for hypothetical three-story buildings that combined could contain up to 400 people and laboratories. Actual placement in this area requires the construction of additional parking at, for example, one of the alternative sites previously discussed.

9. RECOMMENDATIONS (NOT PRIORITIZED)

1. WR parking plans should immediately target an average utilization of 80 percent. This means the immediate, minimum construction of an additional 29 powered parking spaces.

2. Electrical service should be extended to all parking spaces. This means, for example, that the large gravel pad attached to the AHRB-W lot must be made permanent. However, this is financially viable only if no building is intended in that area in the next TBD years. Alternately, a new site should be identified and a permanent, powered lot constructed.

3. People working on the WR will be provided parking on the West Ridge and not be forced to use shuttle-bus transportation from established parking on Lower Campus. This should not preclude shuttle transportation from other locations on the WR, however, just as occurs on Lower Campus.

4. Discussions about growth in student and employee population need be accompanied by discussions about needed facilities and parking to support these objectives.

5. Planning of growth on the WR does not yet appear to be mature. Surface area needs estimated herein should be incorporated into the planning process.

6. The North Campus Subcommittee needs to outline realistic needs and goals for access to and parking near trail heads.

Acknowledgements.
We are indebted to many individuals for providing useful and in some cases critically valuable numbers for this little exercise. Some names may have been lost in the making, for which we apologize, but we do remember and explicitly thank the following:

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Julie Wegner, Geophysical Institute
Frank Williams, ARSC director

APPENDIX A. DETAILED DESCRIPTION OF THE WEST RIDGE PARKING LOT INVENTORY

UAF Parking Services has provided all parking data to the committee through the hands of Ed Foster. Several categories of special parking (e.g., handicapped, authorized/official, physical plant, loading zone, and gold decal) have been isolated from the total counts in order to concentrate initially on the need for regular decal parking spaces. It turns out that the special parking needs are approximately 11 percent of the available regular parking.

Regular parking comes in three types; powered and un-powered (electrical service) parking spaces and illegal parking. The latter is a compliance issue not addressed herein. Eight WR lots are identified in Column 1 of Table A1. For the purposes intended herein, the eastern boundary of the WR is defined as the open space to the east of the Museum area, consistent with Figure 2 of the 2003 CPP. The UAF code for each lot and the type of parking (D for decal and V for visitor) are entered in Columns 2 and 3 of the table.

The two columns labeled "**Known** Parking Spaces" and "**Known** Powered Spaces" (Columns 4 and 5) lead (by a simple difference) to the number of "Un-Powered Spaces" in Column 6. The "Special Parking" spaces (from above) and "Other Spaces" are itemized in the next four columns, where "PS" and "UPS" are labels for "Powered Spaces" and "Un-Powered Spaces." Notes related primarily to the "Other Spaces" are provided in Column 15. The "**Calculated** Total Decal Spaces" (having removed the special and other spaces) are presented in Columns 11 and 12. The total numbers for calculated parking spaces (Column 13 = sum of Columns 11 and 12) are compared with the known numbers in Column 14. This dissection of the data yields the same number of total decal spaces as provided in the Parking Services data, as it should. Note that there are 119 un-powered spaces in the temporary extension to the Arctic Health-W lot (i.e., a gravel pad). These new spaces nearly equal in number the 123 spaces removed by construction of the new WR Plaza, though some in the old "O'Neill South" lot were powered.

In summary, there are on the WR a total of 735 regular parking spaces, 603 of which are powered. An additional 94 spaces are currently used for special purposes (11 percent of the total spaces; 829). An overage of 11 percent for special parking becomes a useful number. **No assumptions have been made to this point.**

Gary Newman has scaled UAF drawings to obtain estimates for the total surface area of several powered parking lots (but which may contain several un-powered spaces). The results are given in Column 16, in units of 1000 square feet. One of us (J. Craven) stepped off (in calibrated steps) the AHRB-W lot, edge to edge, and got a number that is only 14% larger than Newman's CAD-derived number. The ratio of total area for a lot (Column 16) to the total number of parking spaces in that lot (Column 13) leads to a measure of effective area consumed per space, as tallied in Column 17 for the five lots with estimated surface area, but excluding the un-powered temporary portion of AHRB-W. The average of these five numbers leads to a staggering 676 sq ft effective area per car. There are large variations from lot to lot.

A space multiplier M (Column 18) is defined to assist in the analysis, where M is the effective area per car in a lot (Column 17) divided by the designed area per parking space (9'x20'=180 sq ft; per Ed Foster). For the areas estimated above, an average value is M=3.8. That is, one unit space for a parking space must be supported by an additional 2.8 unit spaces.

The variations in M are presumed due to layout of the parking spaces and lanes and the overall shapes in which lots are confined; i.e., rectangular vs. irregular. Additionally, any special parking spaces are contained within each lot, so they appear here as an additional burden on the overhead as opposed to a separate number. If we do not use the smallest and presumably least efficient lot (O'Neill North) in the determination of M, its average is reduced to M=3.4. As a supplemental bit of information, Ed Foster had the west end of the Upper Dorms North lot measured (70 parking spaces, 27,000 sq ft). The result is 385 sq ft per space and M=2.1. Including this newer lot but still excluding the smallest lot (O'Neill) yields M=3.1.

In summary, the area needed in the powered lots to create and support a single parking space consumes on average an effective area 3.1-to-3.8 times the area provided for that single space, which is 180 sq ft. That is, 560-to-680 sq ft. per space. **There are no assumptions here, but incomplete data on surface areas.**

Returning to the original Kittelson & Associates study, their count of existing parking spaces (what they called "background") was 1000 based on their understanding of the planned parking configuration after completion of the numerous modifications on the WR and completion of the museum parking lot [Table 4, 2003 CPP, p 30; see also text and Figure 6]. First, the 100 parking spaces assigned to the museum construction program do not yet exist (and are not part of this analysis), reducing the actual number to 1000-100=900 spaces. Second, the large-scale alteration of the WR Plaza was initiated after the CPP was finalized, so the 130 parking spaces [Table 5, 2003 CPP, p31] removed during that construction was not deducted; 900-130=770 spaces. Lastly, we do not believe that the expansion of the AHRB-W (the gravel pad) was included in their estimates, which then becomes 770+119=889 spaces. This revised number is close to the now known count of 829 and no benefit is gained by further forensics into the origins of the original CPP numbers. **In summary, the CPP's background count of parking spaces (1000) is too large by 171 spaces.** While it is true that the BIRD and Museum lots will be added later, they are not part of the current reality at UAF, and we have to work with existing numbers to establish the current baseline.

Table A1. Parking lot and building personnel inventories for the West Ridge, Fall 2004

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(a) Parking Lot Inventory and Analysis	ID Code	Parking Lot Type	**Known** Parking Spaces	**Known** Powered Spaces	Un-Powerd Spaces	Special Parking HC,A/O,PP,LD,G		Other Spaces		**Calculated** Decal Spaces		**Calculated** Total Decal Spaces	**Known** Decal Spaces	Comments	Newman Surface Area (powered) 1000 sq ft
						PS	UPS	PS	UPS	PS	UPS				
ARCTIC HEALTH, E	C	D,V	70	64	6	2	1	1	0	61	5	66	66	other - contractor parking only permit	35.2
ARCTIC HEALTH, W	D	D	192	73	119	0	0	0	0	73	119	192	192	Unpowered, temporary parking on gravel	34.8
BUTROVICH	SS	D,V	197	197	0	7	0	3	0	187	0	187	187	other - visitor only	
ELVEY	A1	D	194	194	0	26	0	33	0	135	0	135	135	other-reserve(govt, nws, arc, vendor)(28),visitor(5)	103.9
IAB/IRVING	HH	D	17	17	0	2	0	0	0	15	0	15	15		
MUSEUM	LL	D	29	12	17	2	0	0	15	10	2	12	12	other - WHAT ARE THEY USED FOR?	
SHEENJEK LOT	SL	D	85	79	6	0	0	0	0	79	6	85	85		55.4
O'NEILL NORTH	NN	D	45	45	0	2	0	0	0	43	0	43	43		40.8
TOTALS			**829**	**681**	**148**	**41**	**1**	**37**	**15**	**603**	**132**	**735**	**735**		**270.1**
														Area per parking space is (9x20=180 ft sq)	
														Average multiplier M for surface area per car	
(b) Building Personnel Inventory and Analysis			Staff faculty count from phone info (UR) (Note 1)	Graduate student counts from Institutes (Note 3)	Under graduate counts from Institutes (Note 3)	Total faculty, staff, student count	Projection to 2010 assuming WR demand increase of 34% (Note 2)								
IARC			108			108	145								
ELVEY			196	87	29	312	418								
WRRB			111			111	149								
ONL			119			119	159								
IRV I			59			59	79								
IRV II			30			30	40								
AHRH			102			102	137								
MUS			37		30	67	90	MUS says staff count is 46							
BUTRO			177			177	237								
							0								
ARSC				3	10	13	17								
SNRAS				26		26	35								
SFOS & IMS				50		50	67								
IAB (B/WL on WR)				99	6	105	141								
Totals			**939**	**265**	**75**	**1279**	**1714**								
Percent of total			73.4%	20.7%	5.9%	100.0%	134.0%								
Incremental increase							**435**	This exceeds population of 3 WRRBs							
Comments															
1. Building occupancy numbers are from U. Relations (phone listings) with redundancies removed by J. Craven															
2. Projection was 40 % from 2003 to 2010. Assuming linear rate of increase (5.7 %/yr) have 34 % in 6 years.															
3. Numbers for IARC and ELVEY are combined, including their personnel in WRRB															

APPENDIX B. DETAILED DESCRIPTIONS OF THE WEST RIDGE BUILDING PERSONNEL INVENTORY

It was initially thought that a viable source of information on WR personnel would be available from the office of Campus and Space Planning and/or the office of Planning, Analysis and Institutional Research (PAIR), but they are apparently not able to provide these data from their current databases. It also appears the no building location information is available in the BANNER system; the location field is blank. **Hence, it is assumed that the current phone book provides an accurate headcount and reasonable location for all WR employees.**

Sharon Burke at University Relations was able to efficiently provide a complete listing of individuals with telephones for all WR buildings. This EXCEL file was then sorted and reviewed to isolate redundant entries largely arising from multiple phone entries for some individuals. The results of this exercise are presented in Column 4 of Table A1, under Part (b). At this point, the focus is on totals for the WR and not on actual building location. However, those data are sufficiently complete to know if an individual is located in the eastern or western half of the WR. This more in-depth analysis can await the overall verification of data and understanding of the initial projections for the entire WR. **In summary, there were 939 employees on the WR in fall 2004.**

This telephone-listing source does not include graduate teaching and research assistants and undergraduate research aides, etc., so additional data mining was necessary. The method used was to simply contact and ask each dean and/or director. The results of that query are given in Columns 5 and 6. There is no reason to expect any less demand for parking by graduate students as compared to permanent faculty and staff, so no adjustments are made here. The number of undergraduates involved in research or simply part-time employment is not large and it is reasonable to expect a smaller fraction have a need for parking. However, corrections here are in the realm of small numbers, so no correction is applied and the analysis is concerned with the total number of individuals. **In summary, there were 340 graduate TA and RA students and part-time undergraduate students working on the WR in fall 2004, 26.6 percent of the total.**

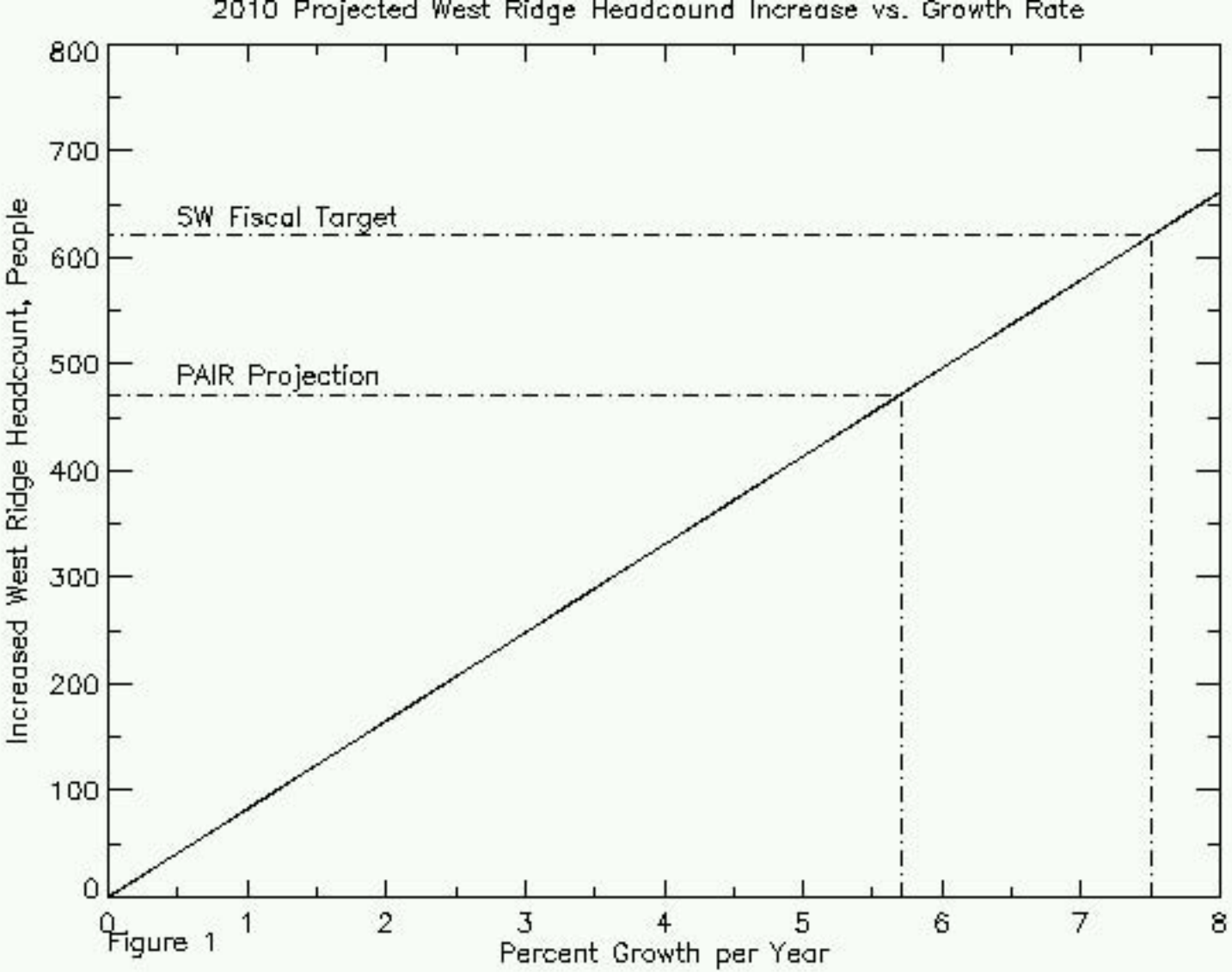
APPENDIX C. SURVEY OF PARKING ON THE WEST RIDGE

A quantitative verification that the parking lots are highly utilized was gained in the week of November 1-5, 2004, when one of us (J. Craven) simply walked the parking lots at about 11 AM on four days and counted the number of unused regular parking spaces (i.e., special parking spaces were not included). The results of that survey are provided in the accompanying Table C1. The current Museum lot was not included due to the confusion associated with the construction activities.

Table C1. Percent utilization of regular parking spaces on the West Ridge. Data were obtained at about 11 AM for four days in November 2004. Temperatures ~ +5 to +10 F.

		Monday, 1 Nov	Wednesday, 3 Nov	Thursday, 4 Nov	Friday, 5 Nov	**Average**
LOT	**Spaces**					
AHRB-E(C)	66	100%	100%	100%	97%	**99%**
AHRB-W(D)	73	100%	100%	93%	100%	**98%**
Gravel pad	119	71%	66%	58%	40%	**59%**
ELVY (A1)	135	100%	99%	99%	99%	**99%**
ONL-N (NN) & IAB (HH)	58	100%	100%	95%	95%	**97%**
Sheenjek(SL)	85	71%	49%	81%	66%	**67%**
BUTR (SS)	187	85%	82%	90%	92%	**88%**
Total	**723**	**90%**	**85%**	**87%**	**82%**	**86%**

With the exception of Friday, the effective total utilization on each day was at or exceeded the 85 percent target used in Table 6 of the CPP [2003 CPP, p 32]. Also, four lots were full or nearly full on all days, and nearly all peak-loading ability was confined to the un-powered AHRB-W lot and the powered Sheenjek lot. It can be concluded that the current parking lots on the WR are effectively full, with limited peak-loading reserve at the east and west ends. Recall that this is in the face of the observations that parking is currently available for only 57 percent of the individuals who have the potential of working on the WR at any time. There is no known information with which to draw conclusions about alternate parking schemes that may be in play if indeed the demand is greater than provided by the number of available spaces.


2010 Projected West Ridge Headcound Increase vs. Growth Rate
Increased West Ridge Headcount, People
800
700
600
500
400
300
200
100
0
SW Fiscal Target
PAIR Projection
0
1
2
3
4
5
6
7
8
Percent Growth per Year
Figure 1

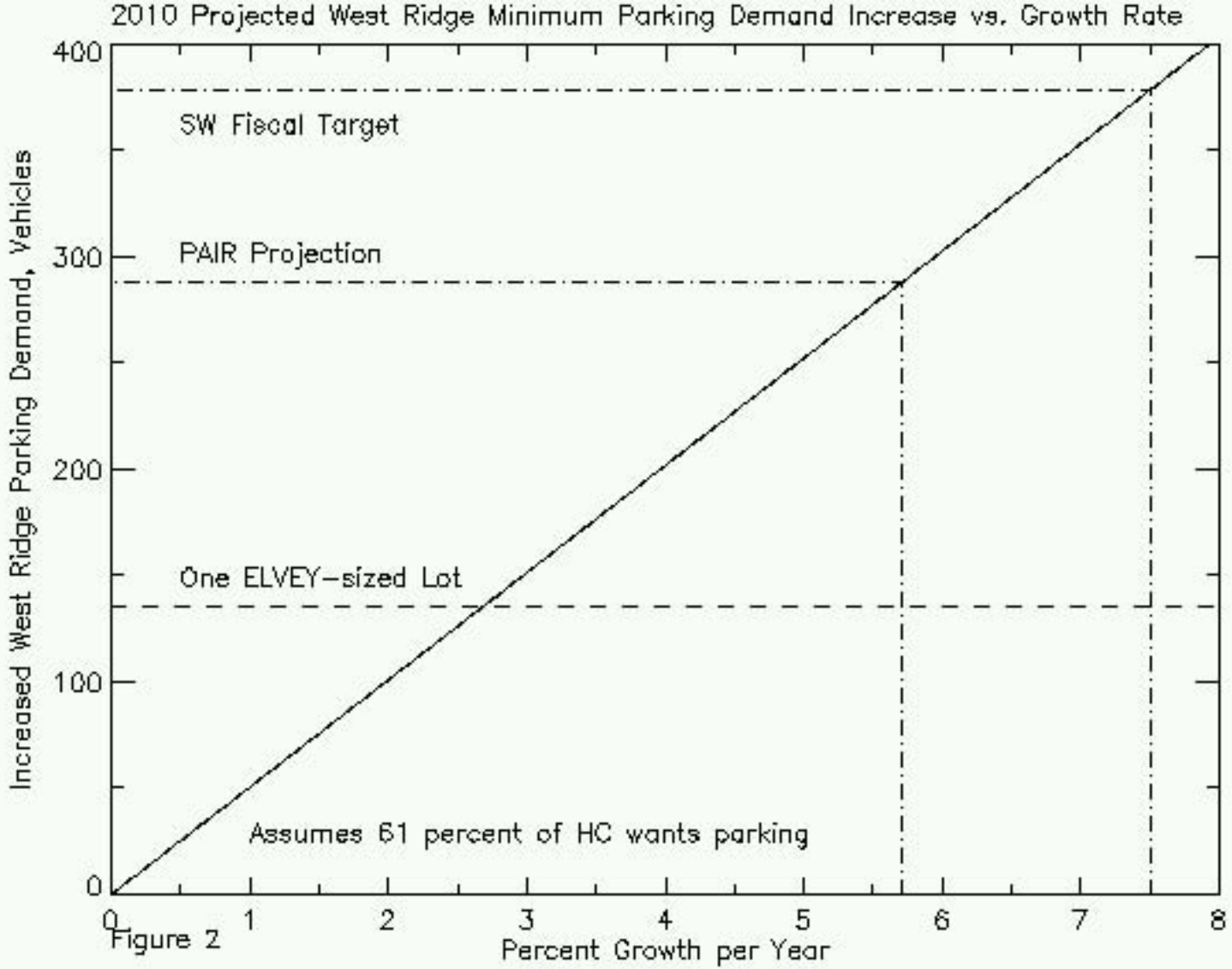

2010 Projected West Ridge Minimum Parking Demand Increase vs. Growth Rate
Increased West Ridge Parking Demand, Vehicles
400
300
200
100
0
SW Fiscal Target
PAIR Projection
One ELVEY-sized Lot
Assumes 61 percent of HC wants parking
0
1
2
3
4
5
6
7
8
Percent Growth per Year

Figure 2

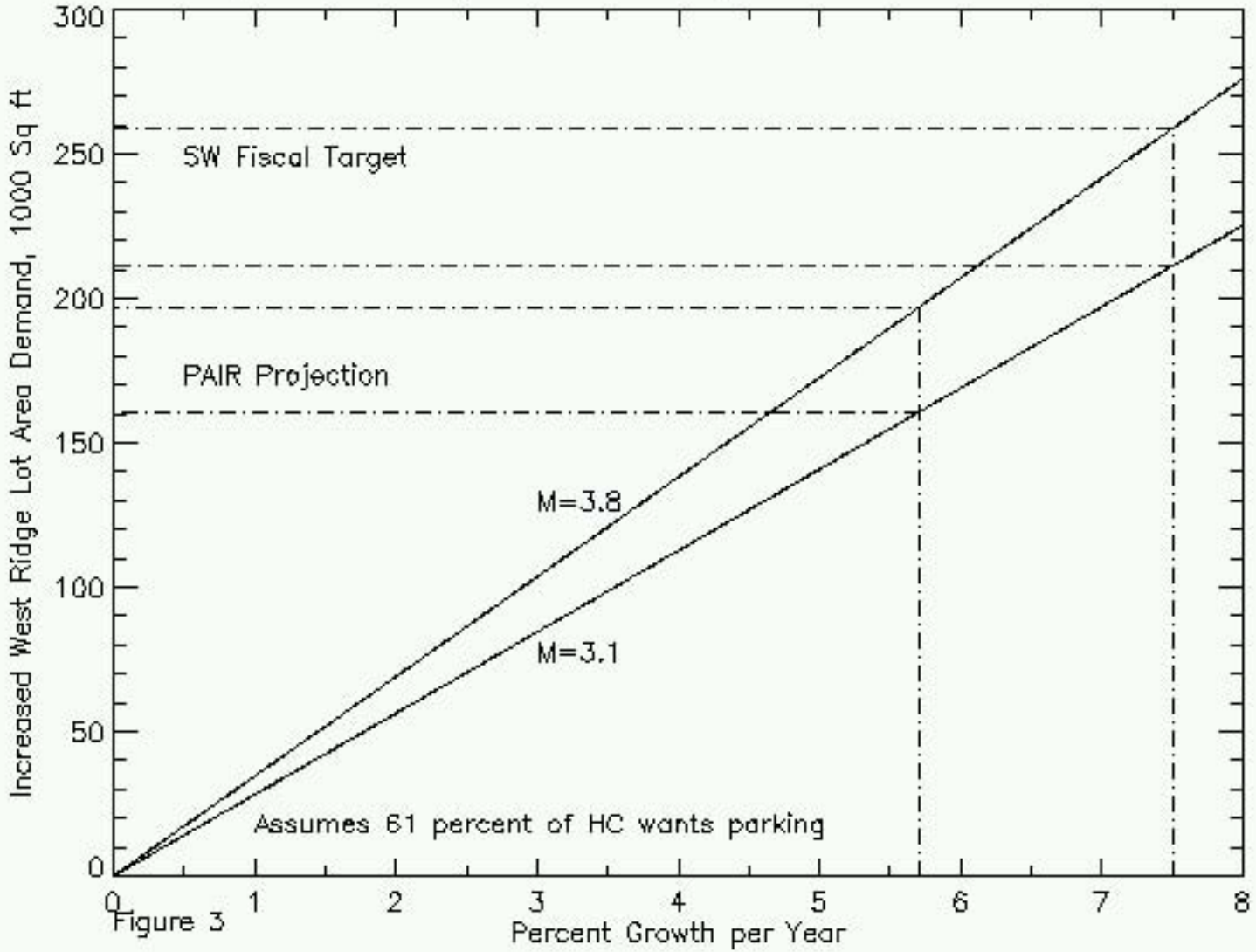

2010 Projected West Ridge Minimum Parking Lot Area Increase vs. Growth Rate
Increased West Ridge Lot Area Demand, 1000 Sq ft
300
250
200
150
100
50
0
SW Fiscal Target
PAIR Projection
M=3.8
M=3.1
Assumes 61 percent of HC wants parking
0
1
2
3
4
5
6
7
8
Percent Growth per Year

Figure 3

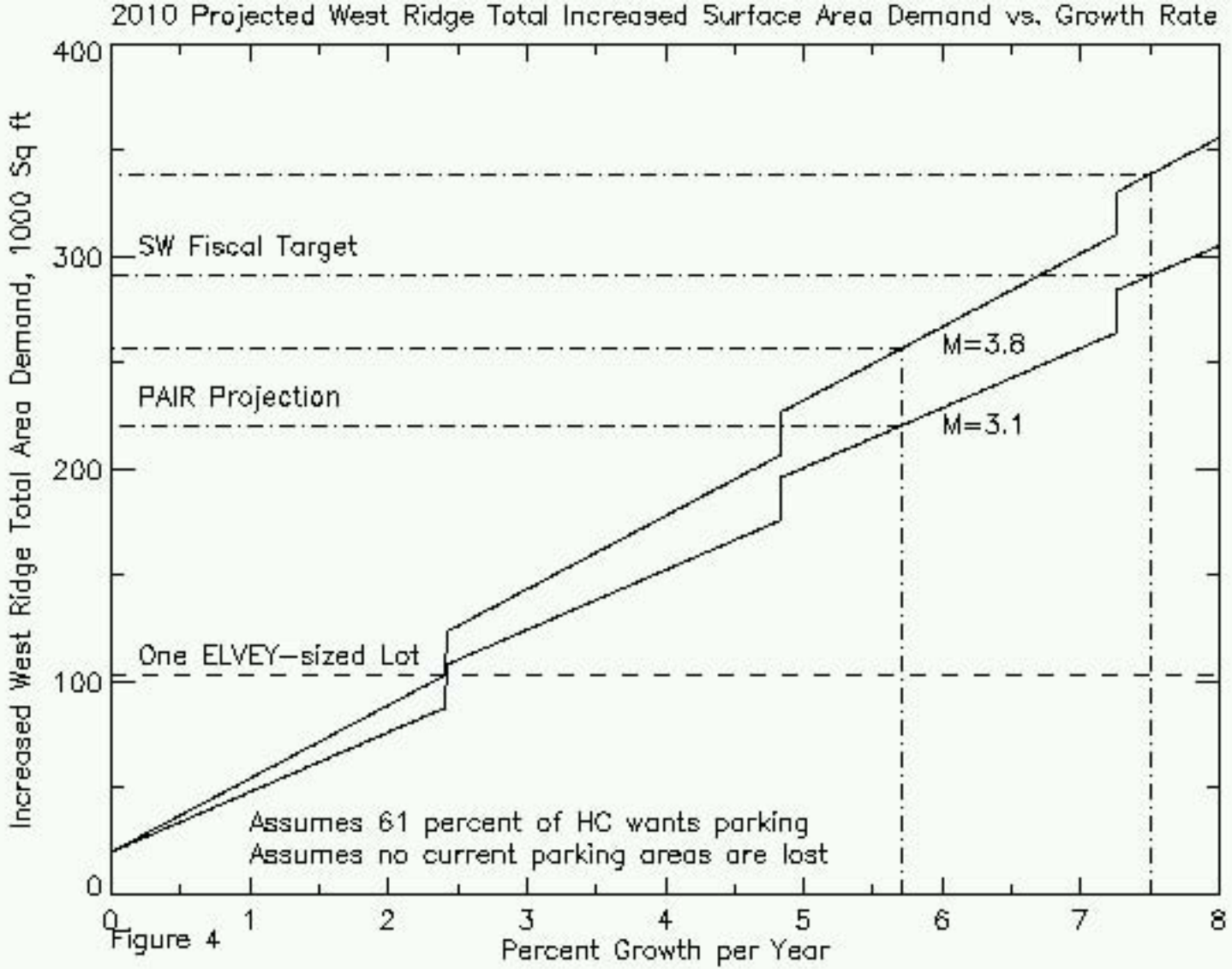
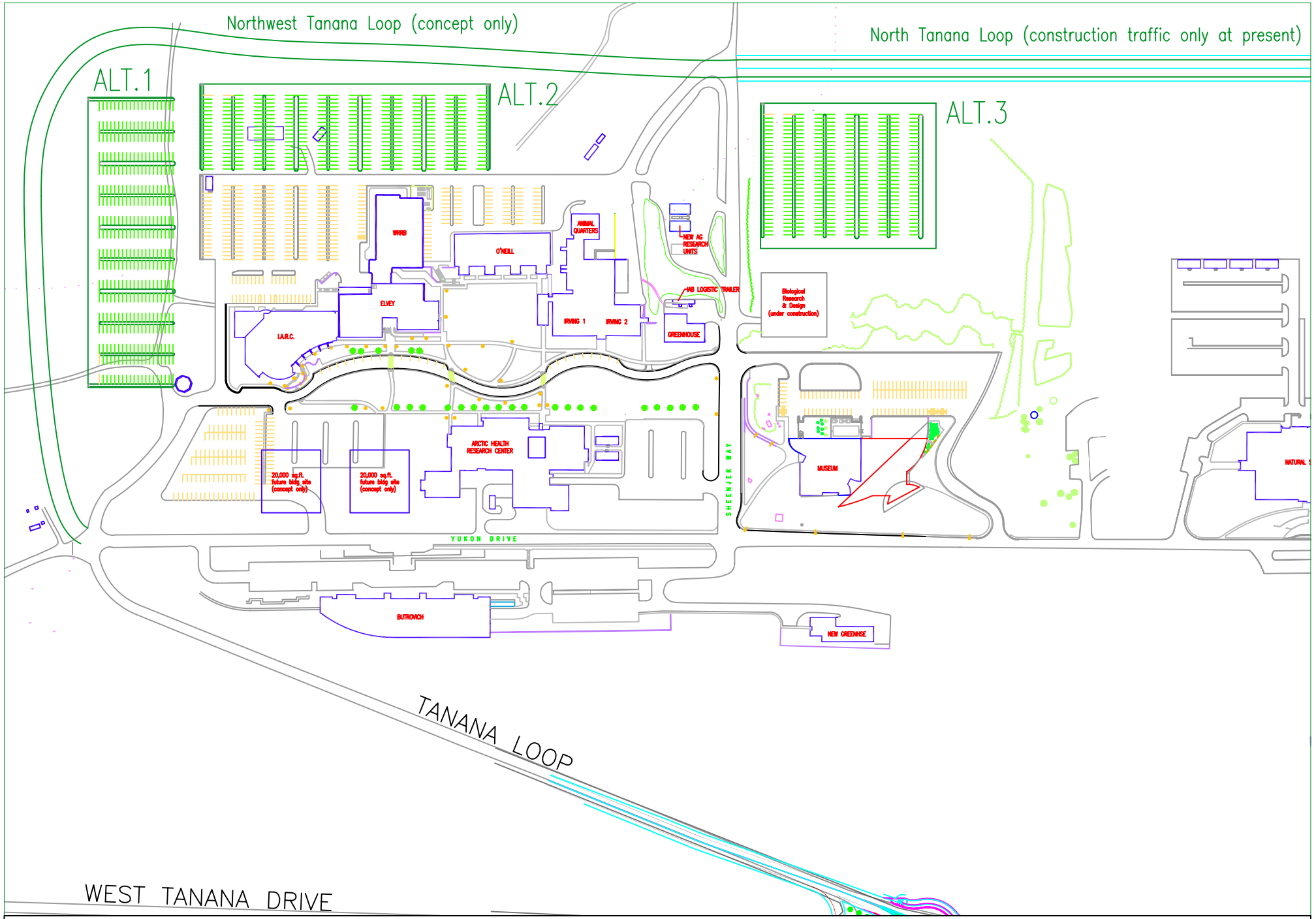

2010 Projected West Ridge Total Increased Surface Area Demand vs. Growth Rate
Increased West Ridge Total Area Demand, 1000 Sq ft
400
300
200
100
0
SW Fiscal Target
PAIR Projection
One ELVEY—sized Lot
M=3.8
M=3.1
Assumes 61 percent of HC wants parking
Assumes no current parking areas are lost
0
1
2
3
4
5
6
7
8
Percent Growth per Year

Figure 4



West Ridge UAF Campus	Concept showing alternates for 139,000 sq.ft. parking lots	drawn: G. Newman	requested: J. Craven
Master Plan Subcommittee on Parking and Circulation		03/15/05	FIGURE 5