North Dakota University System Systemwide Master Plan

Summary of Findings and Recommendations

Presented to the

North Dakota Legislative Branch
Higher Education Funding Committee

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Section 1

Demographic Analysis

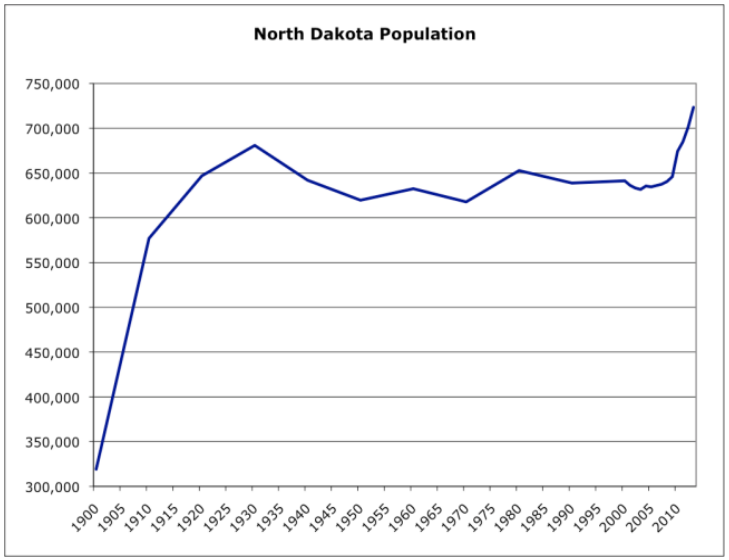
Population Projections

Figure 1

North Dakota Population Projections

Year	State Population	Yearly Change %
2025 projection	841,820	
2020 projection	806,541	4.4%
2015 Projection	750,023	7.5%
2010 Census	672,591	11.5%
2000 Census	642,200	4.7%
1990 Census	638,800	0.5%
1980 Census	652,717	-2.1%
1970 Census	617,761	5.7%
1960 Census	632,446	-2.3%

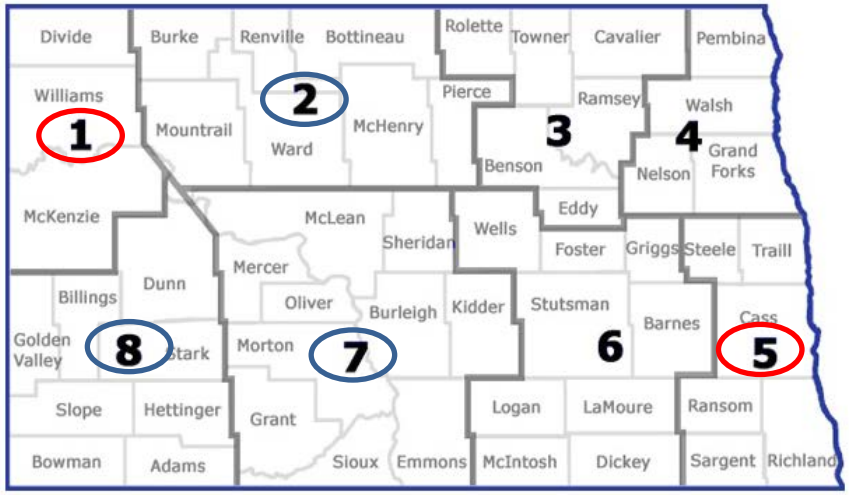
Source: U.S. Census and the Center for Social Research at NDSU.



- 1960 to 2010: Statewide resident population increased by 6.3%
- 2010 to 2025: Statewide resident population is expected to increase by 25% (four times) the 50-year rate due to the impact of energy-related employment
- U.S. Census counts *permanent residents*. If temporary workers who claim residency in other states are factored into the equation, the population projections would be higher.

Population Projections

- Regions 1, 5: Greatest percentage of population increases between 2000 and 2013



- Regions 2, 7, 8: Double-digit percentage increases in population between 2000 and 2013

North Dakota Population by Planning Region

Planning Region	Census 2000	Census 2010	Estimate 2013	% Change 2000-2013	Projection 2025	% Change 2013-2025
Planning Region 1,	27,781	30,829	41,223	48.4%	83,874	103.5%
Planning Region 2,	88,089	89,967	99,389	12.8%	125,002	25.8%
Planning Region 3,	43,168	40,672	41,630	-3.6%	43,016	3.3%
Planning Region 4,	90,798	88,519	90,559	-0.3%	95,125	5.0%
Planning Region 5,	162,127	185,481	198,779	22.6%	218,799	10.1%
Planning Region 6,	61,454	56,363	56,292	-8.4%	58,222	3.4%
Planning Region 7,	130,418	141,864	151,455	16.1%	169,993	12.2%
Planning Region 8,	38,365	38,896	44,066	14.9%	57,405	30.3%
Total	**642,200**	**672,591**	**723,393**		**851,436**	

Source:2000, 2010, and 2013 population data from the U.S. Census Bureau

Planning Regions 1, 2 and 8 population projections from NDSU Agribusiness and Applied Economics

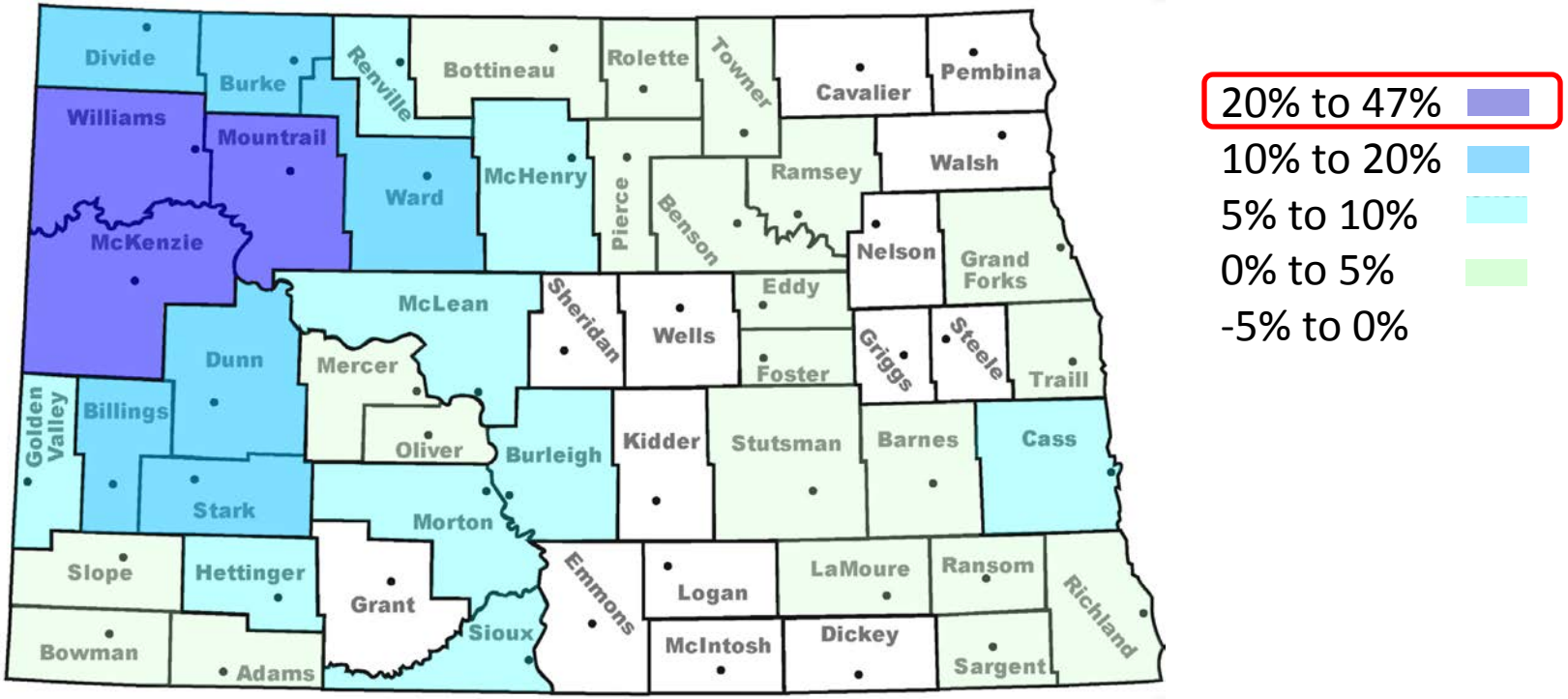
Planning Regions 3 -7 population projections from the U.S. Census and the Center for Social Research at NDSU.

- Regions 1, 2, 8: Will experience disproportionate share of the population growth by 2025

  Moderate population growth in Regions 5 and 7 by 2025, as these areas include two of the larger urban areas

Population Projections

Percent Population Change by County: 2010-2013



The major population changes have occurred and will continue in the western part of the state (Williams, Mountrail, and McKenzie Counties).

The balance of the state is projected to have modest growth. Population growth is proportional to projections for oil field development in the petroleum industry and future employment in the Williston Basin.

Region of Origin-First Time Students

Higher Education Attendance

Region of Origin of First-Time Students Directly Out of High School

Academic Years 2011-2013

Region	2-year	4-year	Research	Total	% of Total
Bakken	465	342	289	1,096	11%
Bismarck	1,091	47	483	1,621	17%
Fargo	256	86	1,193	1,535	16%
Grand Forks	69	35	694	798	8%
Other	1,854	1,136	1,588	4,578	48%
Total	**3,735**	**1,646**	**4,247**	**9,628**	**100%**

Source: NDUS Student Unit Data

- Students from the Bakken and Bismarck regions are more inclined to start their higher education experience at a 2-year college, while students from Fargo and Grand Forks are more likely to attend one of the research universities.
- Student from the "Other" region attended 2-year colleges slightly more than the research universities.

Region of Origin – First Time Students

Higher Education Attendance by Region - Directly Out of High School

Region	Bismarck State College	Dakota College at Bottineau	Dickinson State University	Lake Region State University	Mayville State University	Minot State University	North Dakota College of Science	North Dakota State University	University of North Dakota	Valley City State University	Williston State College
Bakken	182	10	254	2	8	68	59	156	133	12	212
	16.6%	0.9%	23.2%	0.2%	0.7%	6.2%	5.4%	14.2%	12.1%	1.1%	19.3%
Bismarck	1,025	5	18	7	2	19	51	298	185	8	3
	63.2%	0.3%	1.1%	0.4%	0.1%	1.2%	3.1%	18.4%	11.4%	0.5%	0.2%
Fargo	19	5	3	6	21	4	223	915	278	58	3
	2.4%	0.6%	0.4%	0.8%	2.6%	0.5%	27.9%	59.6%	34.8%	7.3%	0.4%
Grand Forks	5	2	1	38	27	4	24	90	604	3	0
	0.6%	0.3%	0.1%	4.8%	3.4%	0.5%	3.0%	11.3%	75.7%	0.4%	0.0%
Other	673	183	48	324	155	678	659	877	711	255	15
	14.7%	4.0%	1.0%	7.1%	3.4%	14.8%	14.4%	19.2%	15.5%	5.6%	0.3%

Source: NDUS Student Unit Data

- In general, college attendance patterns are determined largely by the nature of the institution(s) located within the region.
- This pattern is true for recent high school graduates and is even more pronounced for part-time and adult students.

Participation Rates

North Dakota Higher Education Participation by Institution Type: 2003-2013

Institution Type	2003	2010 Census	2011	2012	2013	% Change 2003-2013
Research Universities Headcount	24,657	28,601	29,096	29,693	29,772	20.7%
Research Universities Participation Rate	*3.9%*	*4.3%*	*4.2%*	*4.2%*	*4.1%*	
Regional Universities Headcount	8,101	8,618	8,357	7,779	7,413	-8.5%
Regional Universities Participation Rate	*1.3%*	*1.3%*	*1.2%*	*1.1%*	*1.0%*	
Two-Year Community Colleges Headcount	8,862	10,718	11,380	10,731	10,830	22.2%
Two-Year Community Colleges Participation Rate	*1.4%*	*1.6%*	*1.7%*	*1.5%*	*1.5%*	
Total Headcount	**41,620**	**47,937**	**48,833**	**48,203**	**48,015**	**15.4%**
State Population	631,225	672,591	684,867	701,345	723,393	14.6%
Statewide Participation Rate	*6.6%*	*7.1%*	*7.1%*	*6.9%*	*6.6%*	

Sources U.S. Census Bureau and NDSU Enrollment Reports from 2012 and 2013.

- Participation rates for the research universities have **increased from 3.9% to 4.1%** over the 10-year period. Community colleges have also increased participation rates, but at a slower rate of 1.4% in 2003 to a high of 1.7% in 2011. The regional universities participation rate has remained flat and recently declined to 1.0%
- The 6.6% statewide participation rate is identical for 2003 and 2013, but spiked between 2009 and 2011
- For comparison, the 2012 statewide participation rate in Minnesota using Minnesota State Colleges and University (MnSCU) System enrollments and state population data was 8.0%

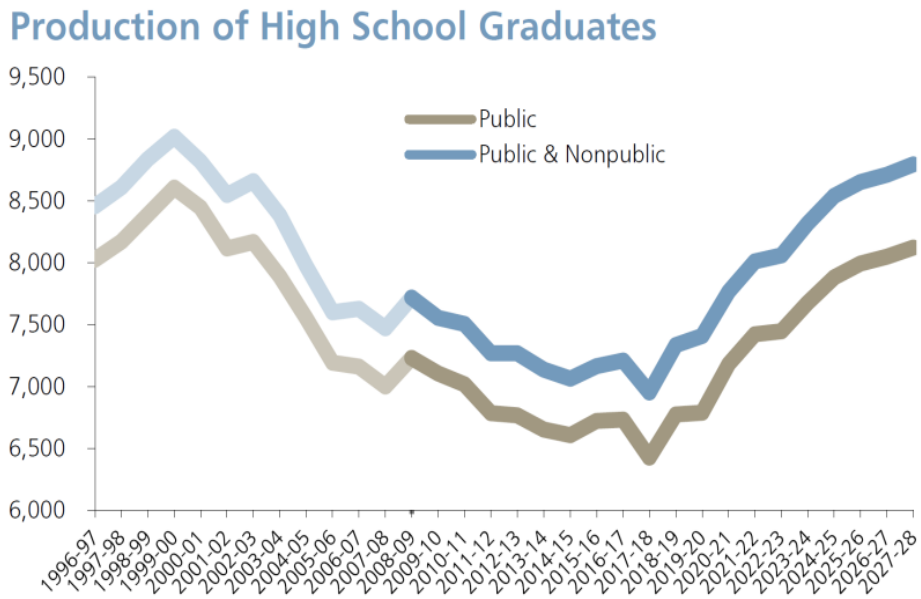
DEMOGRAPHICS SUMMARY

North Dakota Higher Education Enrollment Projection 2015-2025

	2010 Census	2011 Estimate	2012 Estimate	2013 Estimate	2015 Projection	2020 Projection	2025 Projection	% Change 2010-2025
State Population	672,591	684,867	701,345	723,393	750,023	806,541	841,820	25.2%
Total NDUS Headcount	47,937	48,883	48,203	48,015	50,252	54,845	60,611	26.4%
Statewide Participation Rate	*7.1%*	*7.1%*	*6.9%*	*6.6%*	*6.7%*	*6.8%*	*7.2%*	

Sources U.S. Census Bureau, Center for Social Research at NDSU, and NDSU Enrollment Reports from 2012 and 2013.

Using participation rate analysis, by 2025 it is estimated that NDUS institutions could enroll more than 60,000 students, an increase of 26%



Source: WICHE

Section 2

Workforce / Program Alignment

WORKFORCE ALIGNMENT STRATEGY

Workforce Alignment was analyzed from three different perspectives:

1) The 2012-2020 Workforce projections developed by the Georgetown Center for Education and the Workforce (Demand-side Projections)

2) Entry-level education level and wages by education classification produced by the North Dakota Labor Market Information Center

3) Analysis of Burning Glass data (Demand and Supply Side Analysis)

- Outcomes generally pointed in the same direction but differences in data collection processes and projection methodologies produced discrepancies

- Occupational projections extend through 2020. Less predictable economic circumstances make these forecasts less reliable over time.

WORKFORCE ALIGNMENT

Job Openings by Occupation and Education Level (in 1,000s)						
Occupation	Less than High School	High School Diploma	Some college/ no degree	Associate's Degree	Bachelor's Degree	Graduate
Managerial/Professional Office	0	3	4	3	11	3
STEM	0	0	1	1	3	1
Social Sciences	0	0	0	0	0	0
Community Services/Arts	0	0	1	1	2	1
Education	0	0	0	0	4	3
Healthcare Professional/Technical	0	0	1	1	3	2
Healthcare Support	0	1	1	2	0	0
Food/Personal Services	2	8	9	3	3	0
Sales/Office Support	2	8	13	5	11	1
Blue Collar	3	17	10	6	4	0
TOTAL	**7**	**37**	**40**	**22**	**41**	**11**

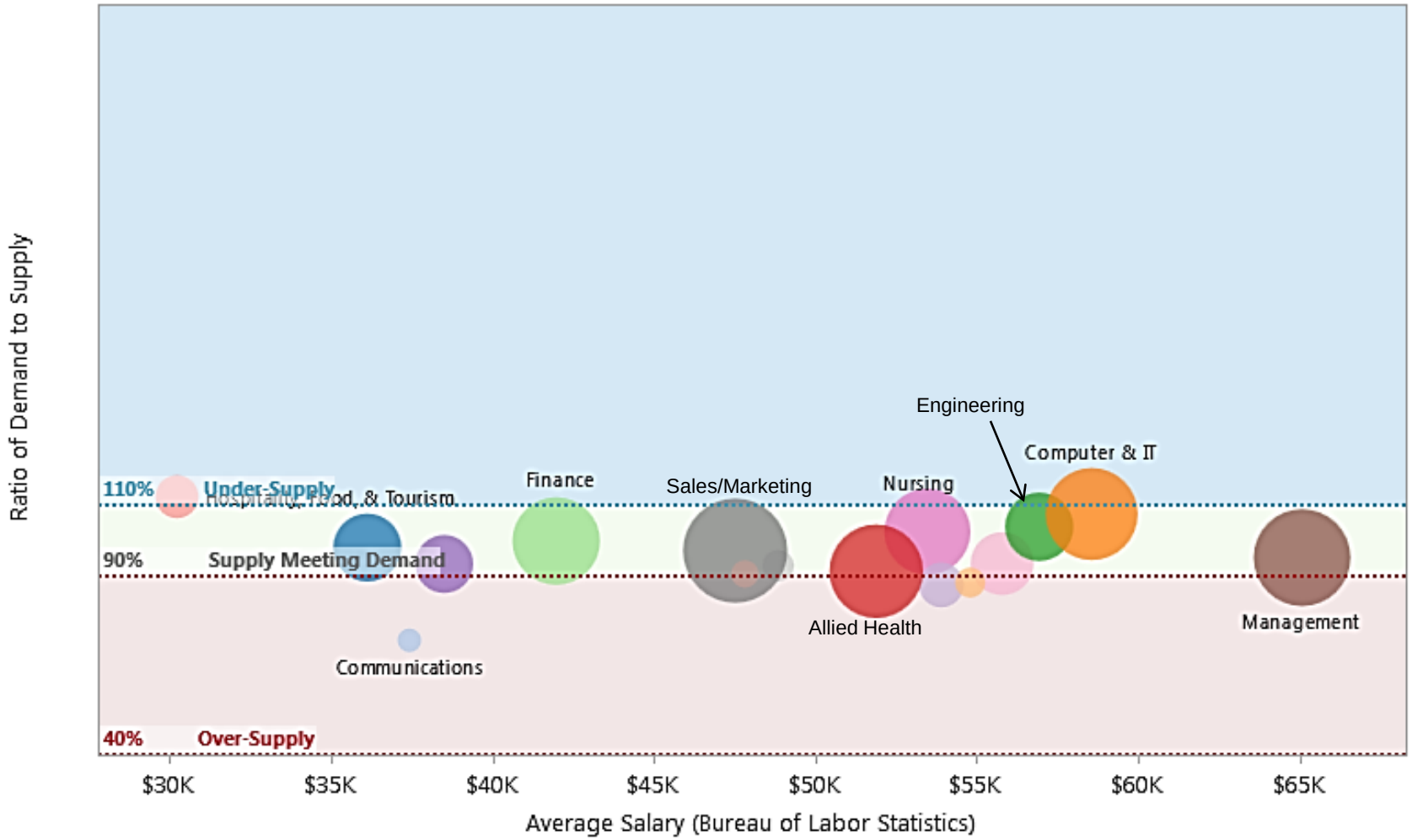
- The Georgetown Center on Education and the Workforce notes statewide job openings requiring 41,000 Bachelor's degrees and 22,000 Associate degrees.

- If one presumes that, in addition to jobs requiring an associate's degree, that many of the jobs in the Some College No Degree category (40,000) will require individuals to have certifications of some kind, the gap between baccalaureate and sub-baccalaureate level diminishes considerably.

Workforce Alignment - Burning Glass

Statewide: Baccalaureate and Above

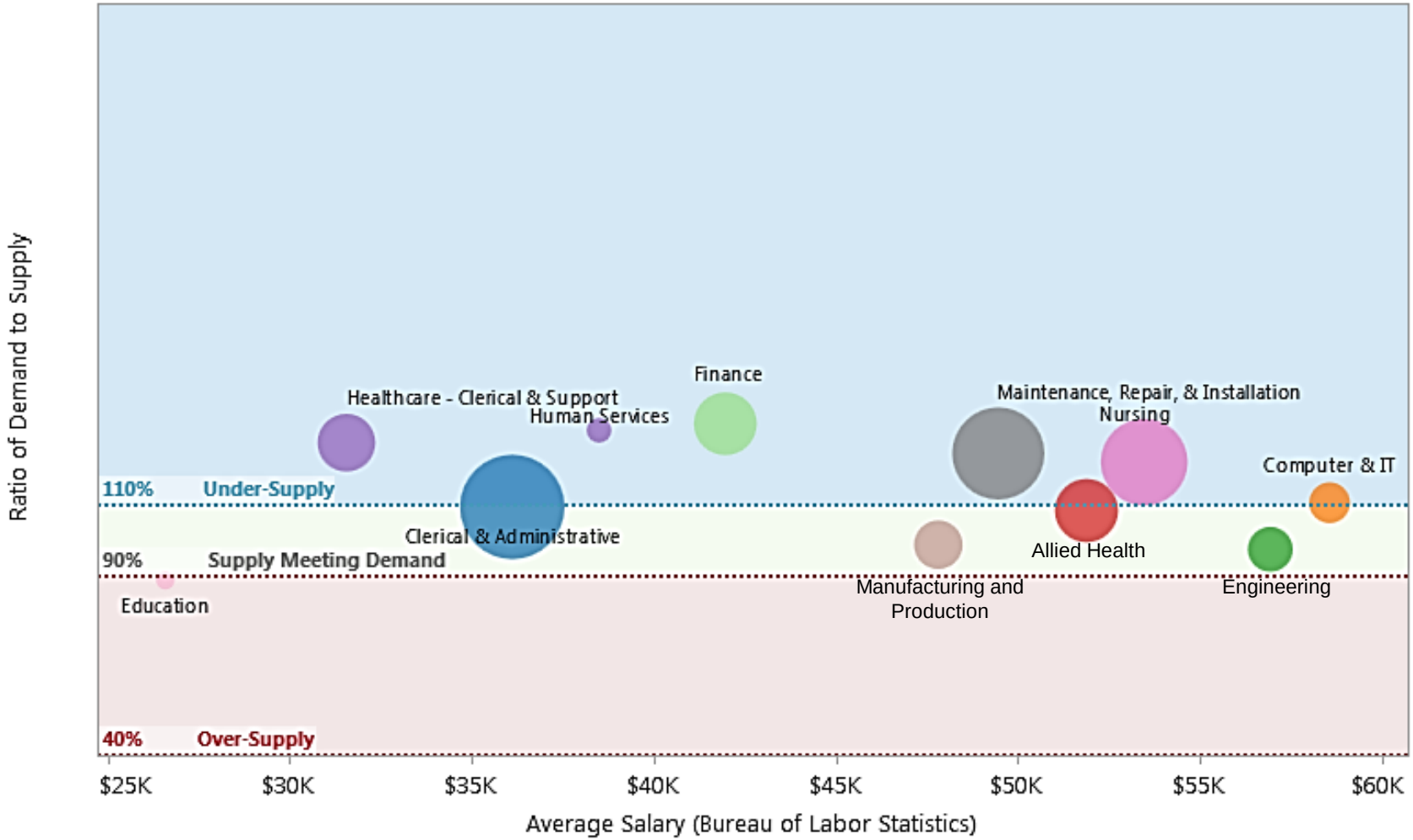
Supply and demand: general equilibrium at this level. Slight under-supply in Computer and IT Professionals but no evidence of lack of capacity at the four-year institutions.



Workforce Alignment - Burning Glass

Statewide: Sub-Baccalaureate

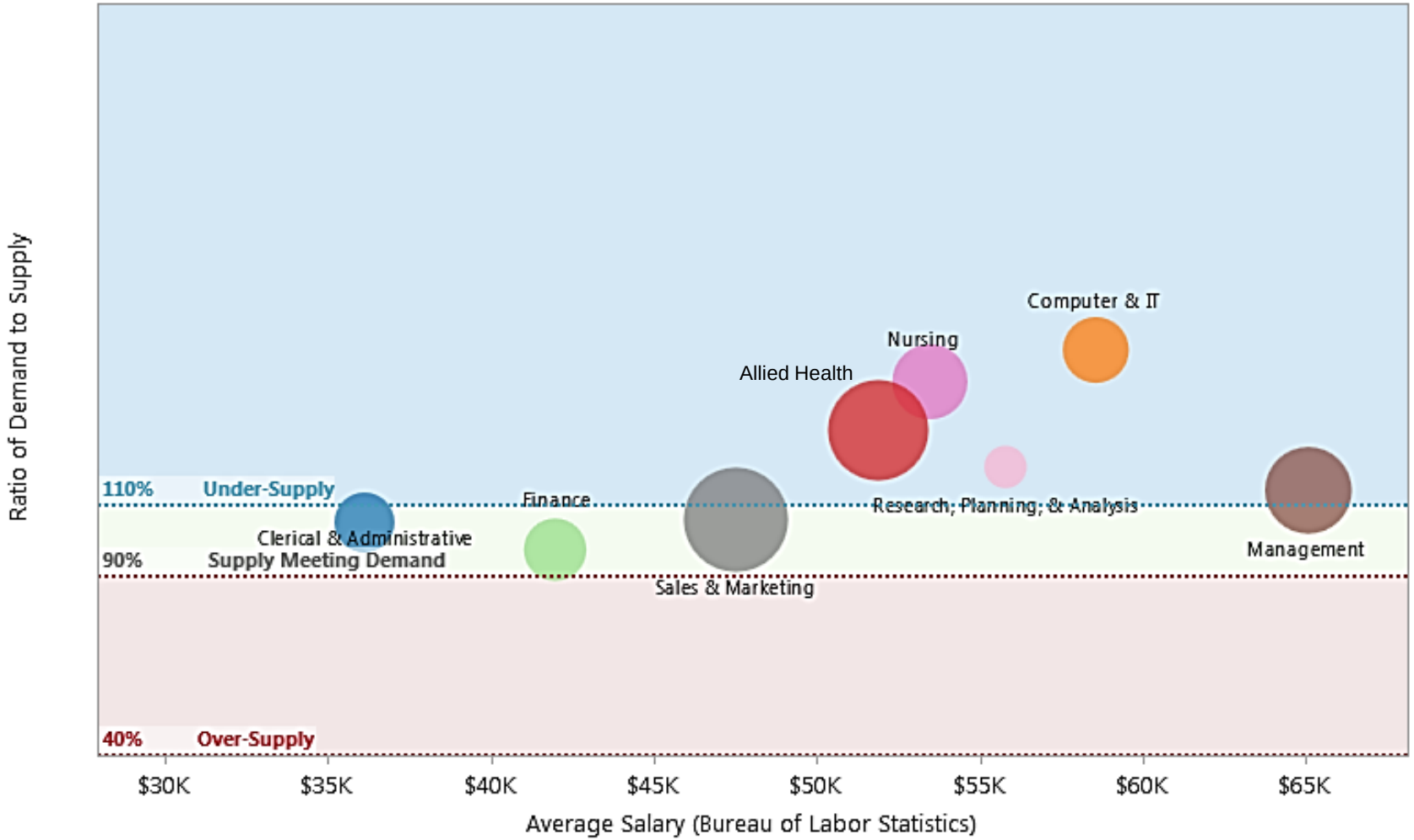
Substantial unfilled demand for Maintenance, Repair & Installation workers and for Nursing occupations. Smaller unfilled demand for Finance positions and lower-wage Healthcare Clerical & Support workers.



Workforce Alignment - Burning Glass

Bakken Region: Baccalaureate and Above

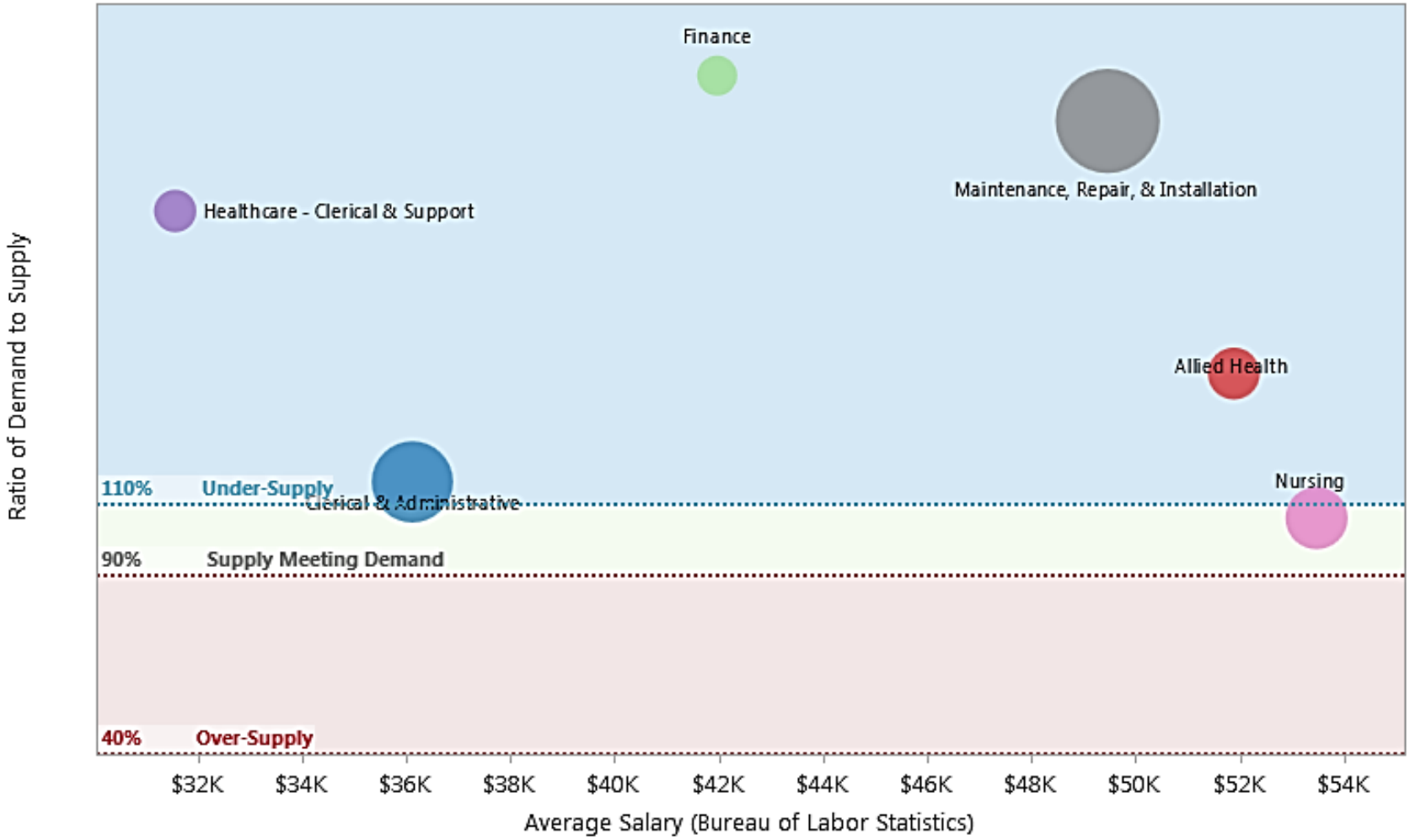
Under-supply in both baccalaureate and sub-baccalaureate career fields in the Bakken Region. Greatest need at this level is in the Allied Health, Nursing, Computer & IT, and Management career areas.



Workforce Alignment - Burning Glass

Bakken Region: Sub-Baccalaureate

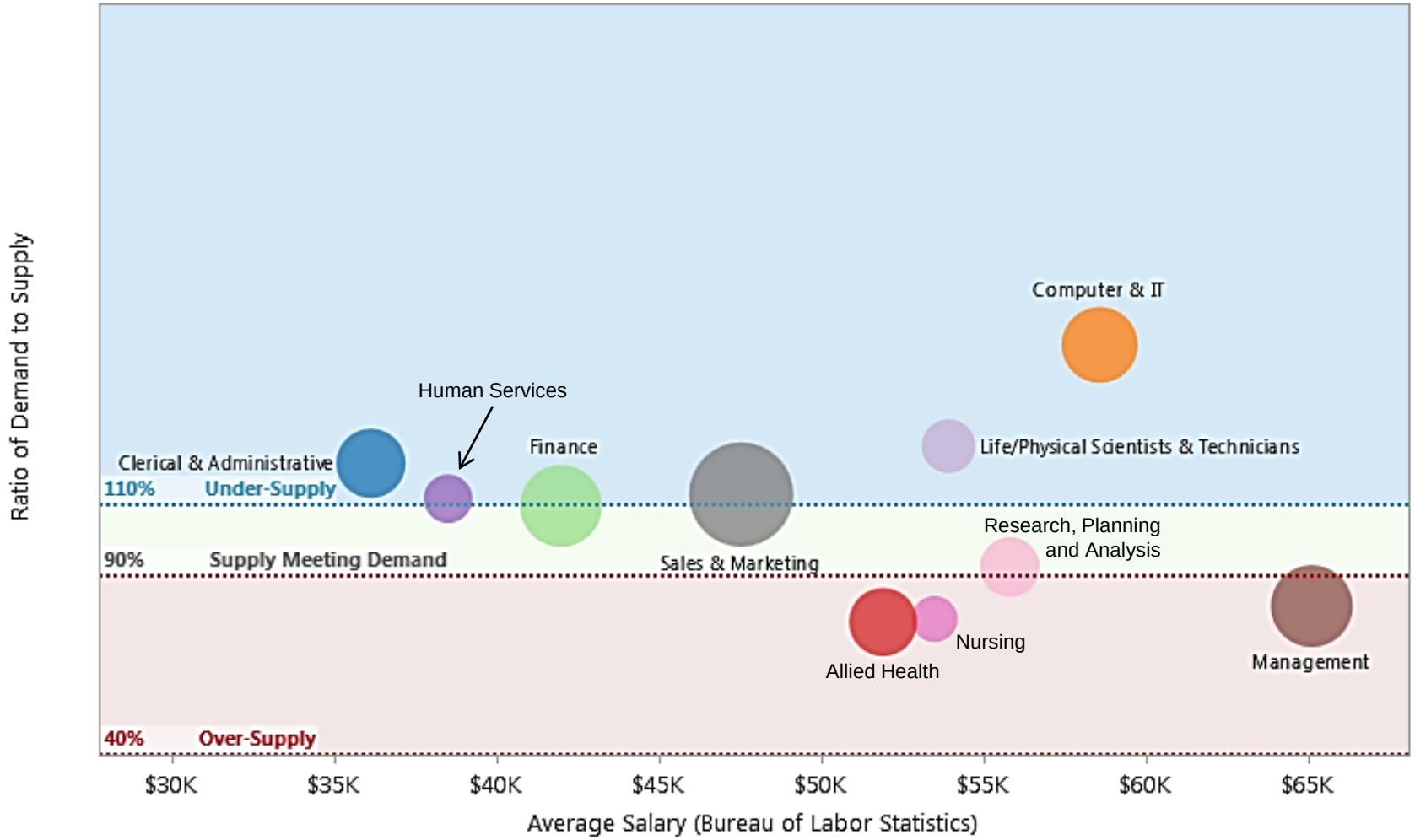
Greatest need at the sub-baccalaureate level is in the Maintenance, Repair & Installation career area where the needs in this region are driving the statewide need. Smaller needs for Finance, Healthcare – Clerical & Support, and Allied Health areas.



Workforce Alignment - Burning Glass

Bismarck: Baccalaureate and Above

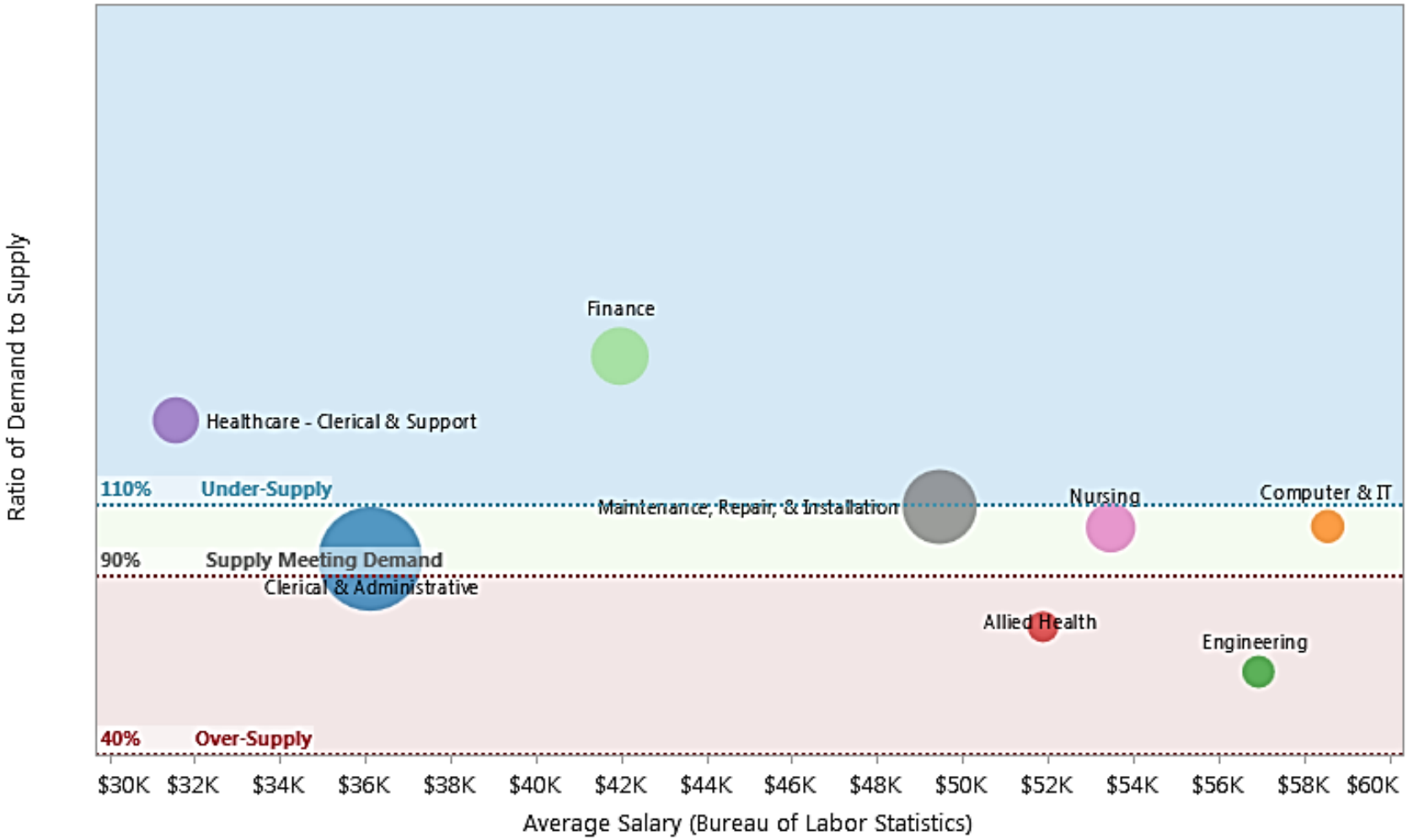
Under-supply at baccalaureate level in Computer & IT, Clerical & Administrative, and Life/ Physical Scientists & Technicians areas. Less need in Sales & Marketing, Finance, and Human Services.



Workforce Alignment - Burning Glass

Bismarck: Sub-Baccalaureate

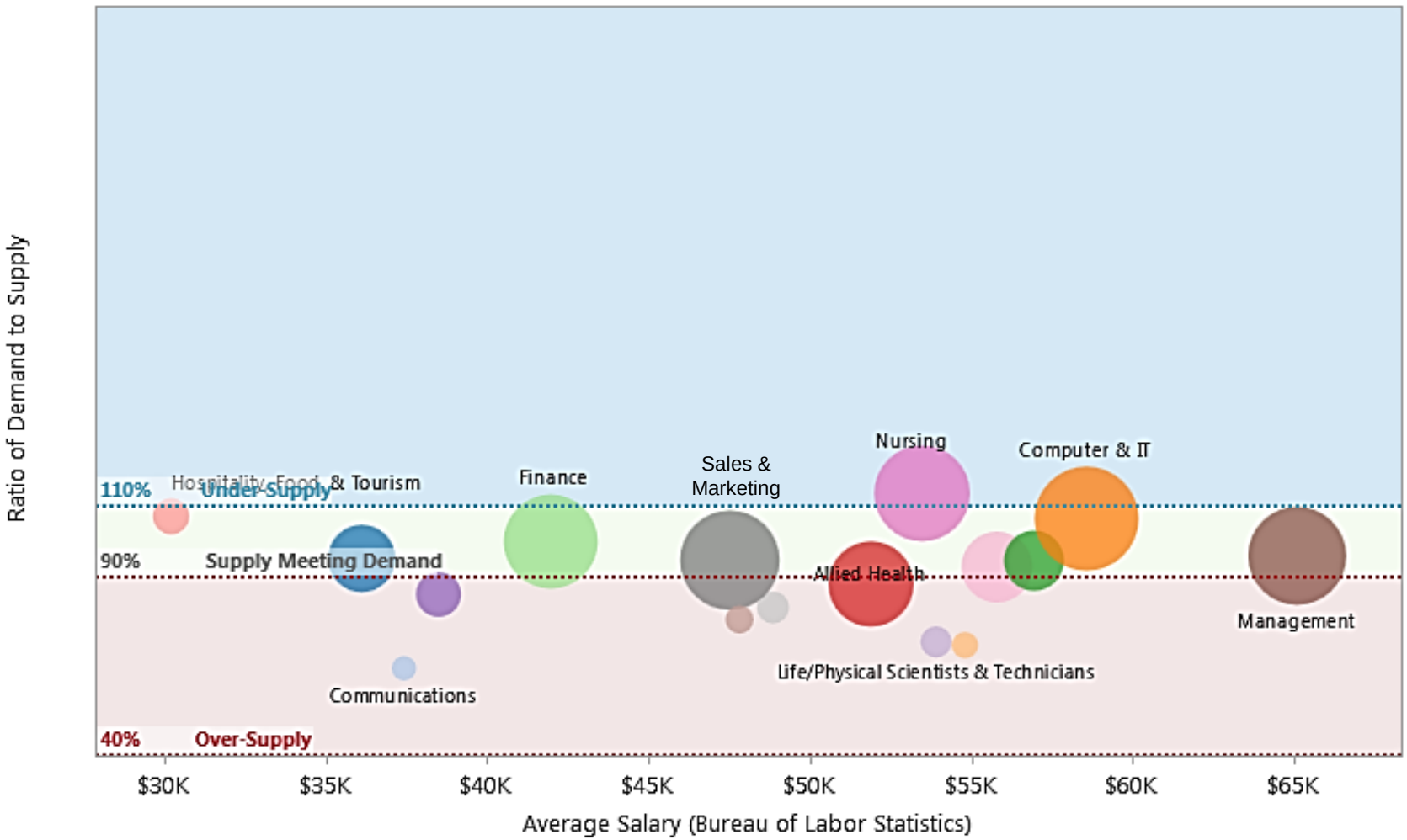
Greatest need at the sub-baccalaureate level is in the Finance and Healthcare – Clerical & Support areas. Smaller need for Maintenance, Repair & Installation areas.



Workforce Alignment - Burning Glass

Fargo: Baccalaureate and Above

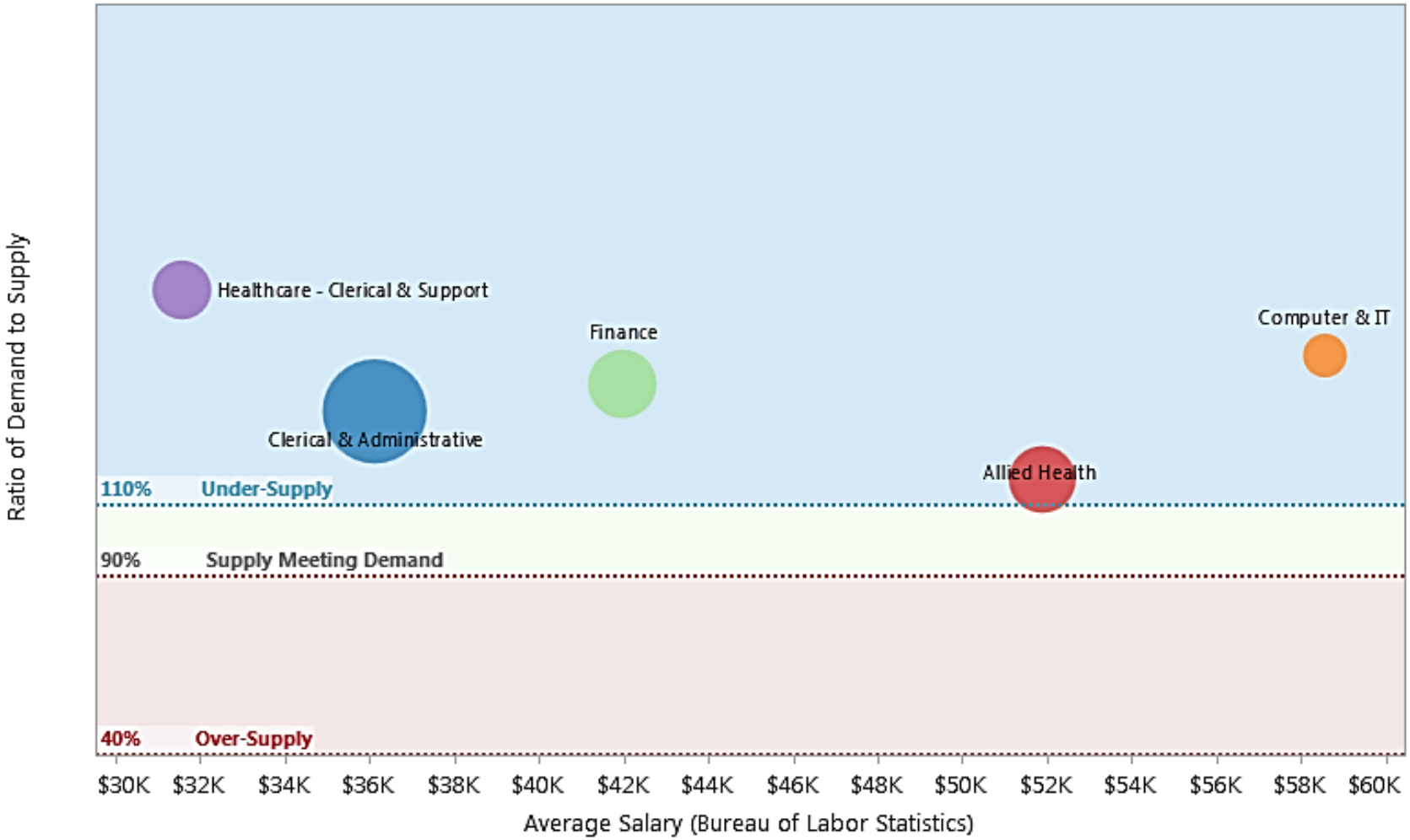
Greatest need at this level is in the Nursing and Computer & IT career areas. Slight need shown for Finance and Hospitality, Food & Tourism areas.



Workforce Alignment - Burning Glass

Fargo: Sub-Baccalaureate

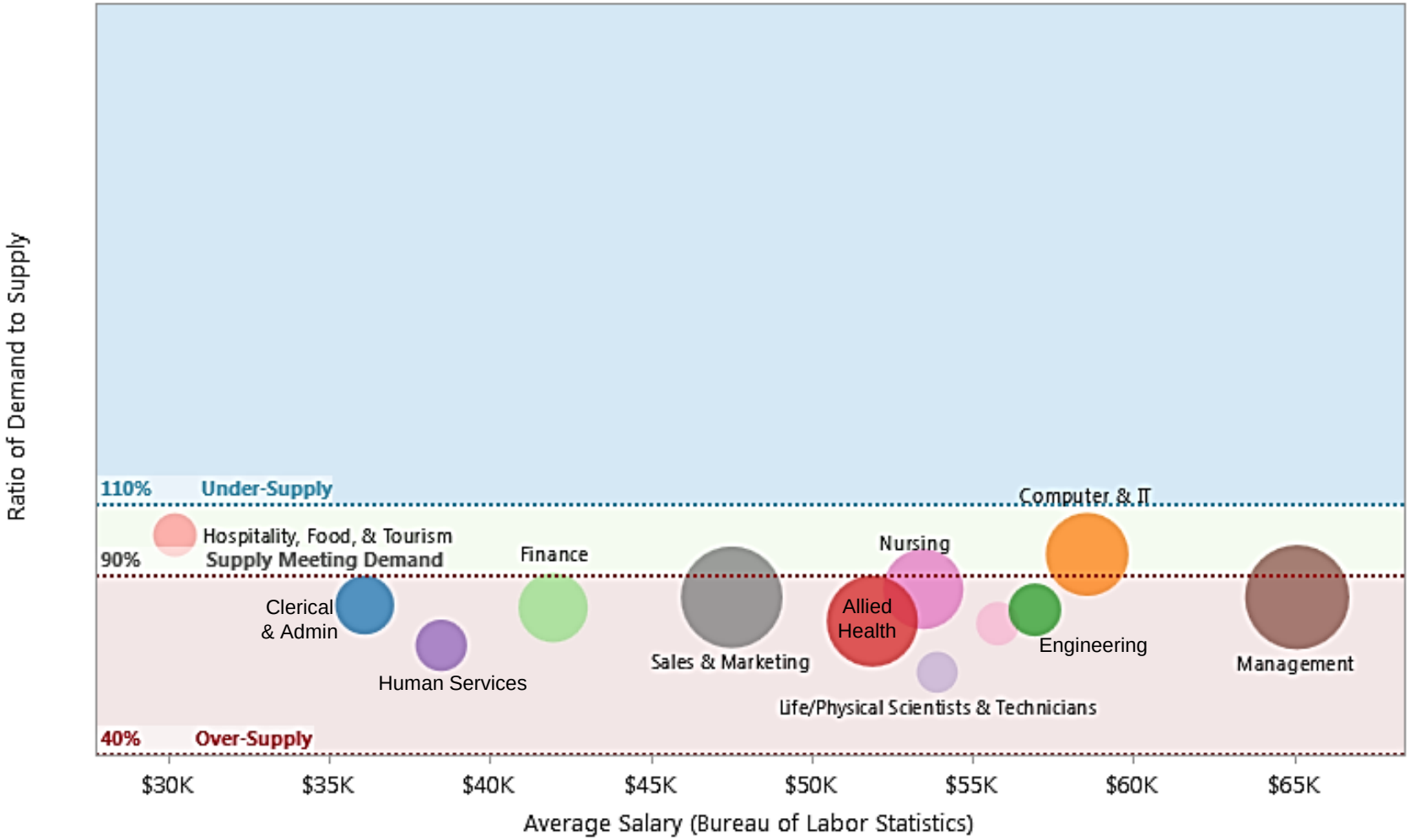
Greatest need at the sub-baccalaureate level is in the Healthcare – Clerical & Support, Clerical & Administrative, Finance, Allied Health, and Computer & IT career areas.



Workforce Alignment - Burning Glass

Grand Forks: Baccalaureate and Above

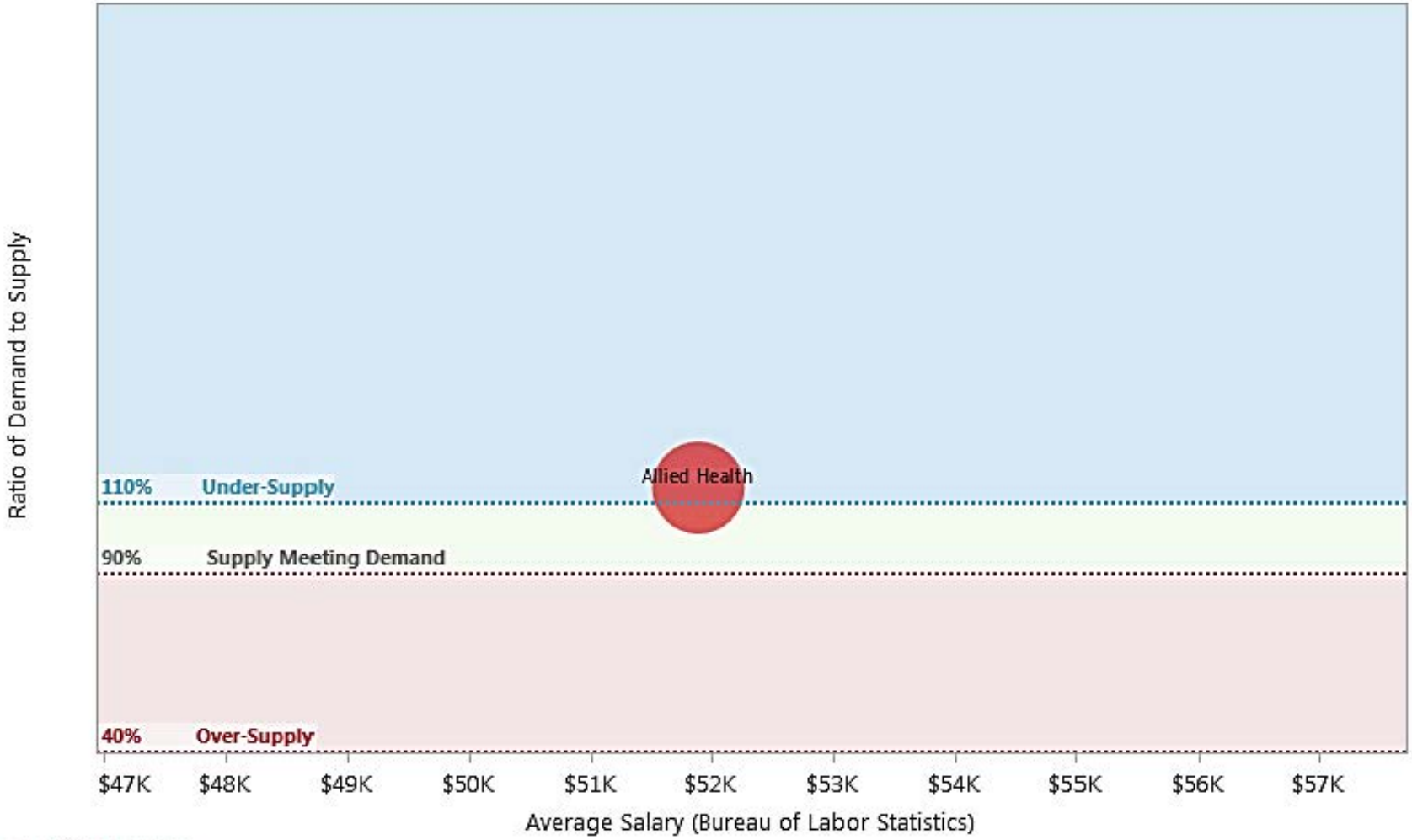
No current needs in any career fields in the Grand Forks area at this level.



Workforce Alignment - Burning Glass

Grand Forks: Sub-Baccalaureate

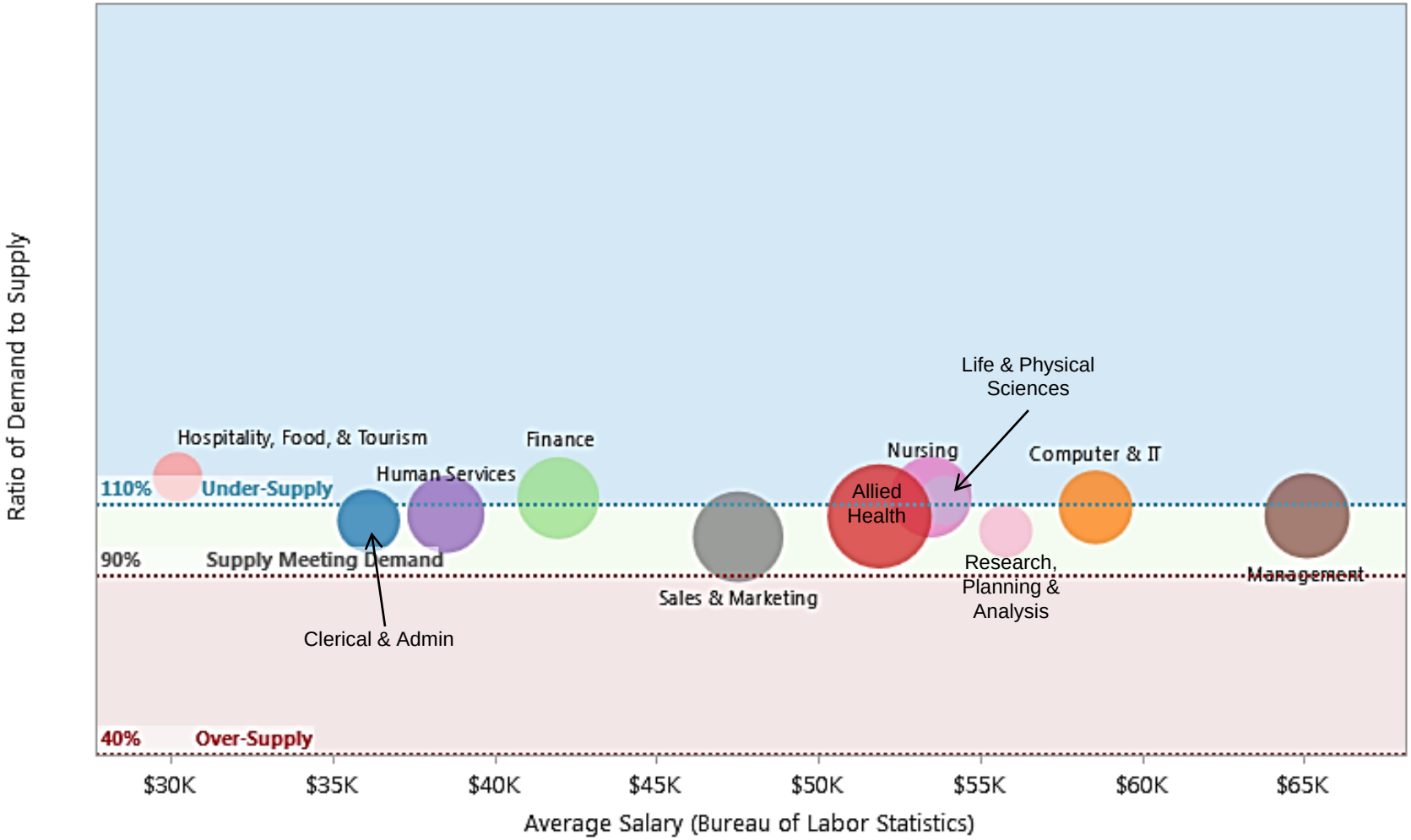
Greatest need Allied Health area.



Workforce Alignment - Burning Glass

Rest of State: Baccalaureate and Above

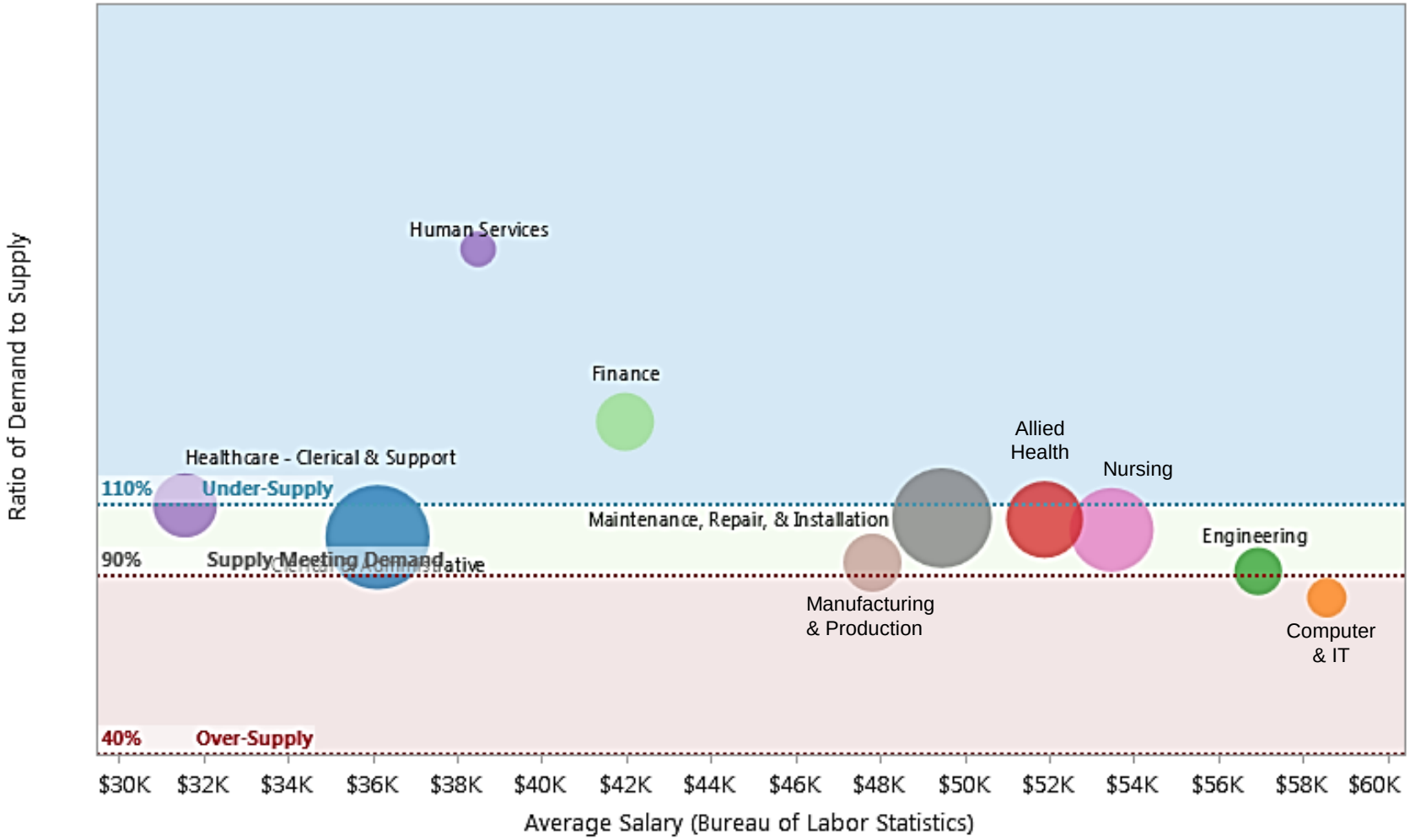
Under-supply at baccalaureate level in majority of career areas. Greatest need in Hospitality, Food & Tourism, Life & Physical Sciences, Finance, Allied Health, Nursing, Computer & IT, and Maintenance. Slightly less need for Human Services and Clerical & Admin.



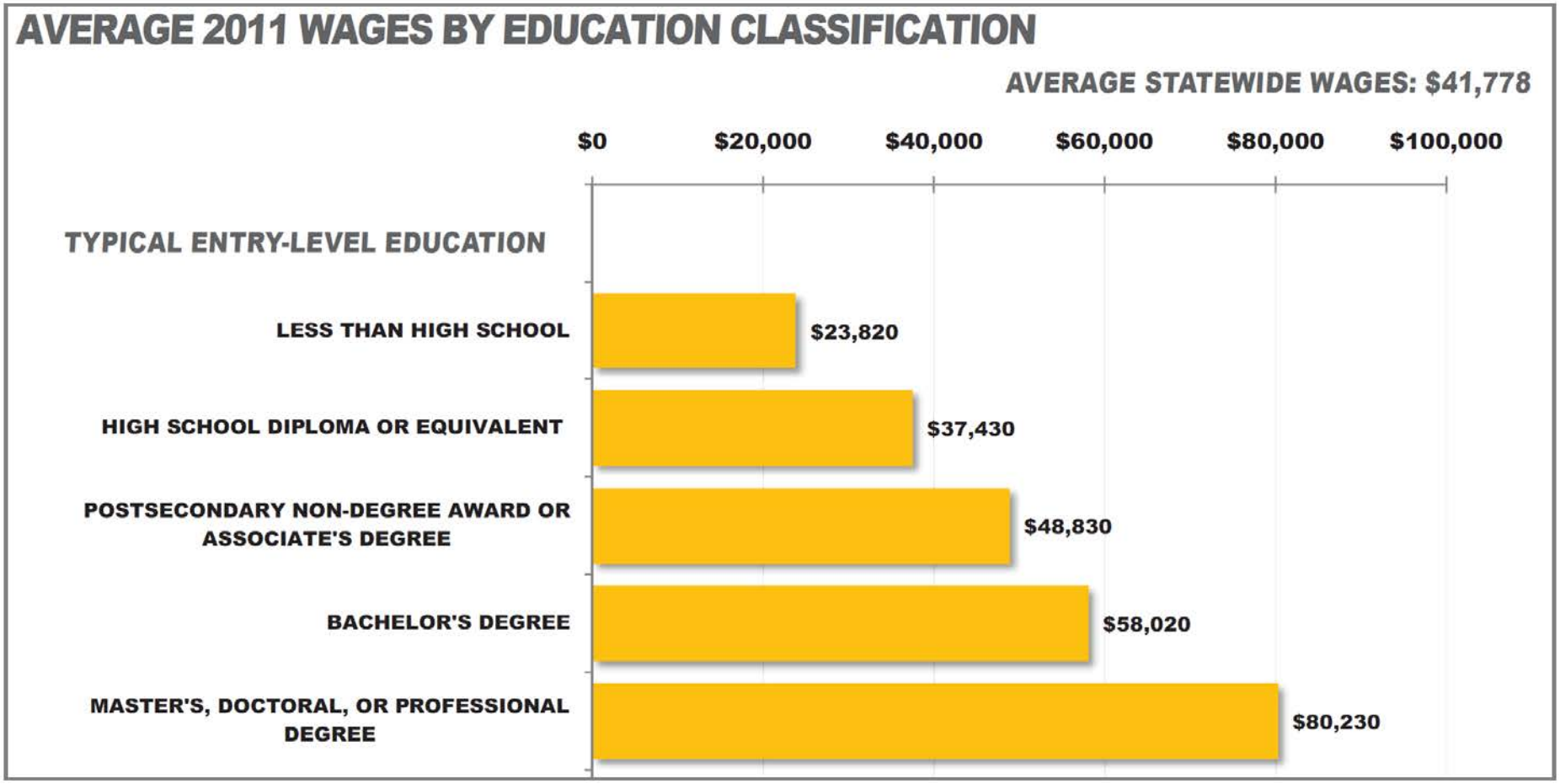
Workforce Alignment - Burning Glass

Rest of State: Sub-Baccalaureate

Greatest need at this level is in the Maintenance, Repair & Installation; Finance; Human Services; and Healthcare – Clerical & Support career areas. There is a small need for Nursing, Allied Health, and Clerical & Administrative areas.



WORKFORCE WAGES BY EDUCATION LEVEL



Source: Labor Market Information Center – Job Service of North Dakota

Section 3

Facility Condition Assessment

1. Review Capital Projects Identified by each NDUS School

Are schools nominating projects that are needed and are their cost estimates credible?

[122] 2013-'15 Capital Requests

Lists Requirements that have "Is Capital Request" = 'True'

Request Name	Request Scope Descr	Request Due Date	Request Cost	Asset Name	Requirement Name	Requirement Description	Category	Action Year	Requirement Cost
Replacement	and the south wall of the union have large windows. These windows are not energy efficient. Also the walls are in need of repair. When there was some remodeling done to the union it was found that the sill plate was rotten in several places. This makes the stability of the wall questionable. The cost for material to replace the north and south walls is $74874.40*.					glazing and painted wood paneling.			

Campus Name: Appropriated - Not Assessed

Campus Capital Request				VFA Commentary					
Request Name	Request Scope Descr	Request Due Date	Request Cost	Asset Name	Requirement Name	Requirement Description	Category	Action Year	Requirement Cost
Interior Doors	Doors – there are 5 interior doors that are damaged and should be replaced. Cost per door is $450.00*.	2014	2,250	Academic Wing	Replace Exterior Doors	The Doors are beyond useful life and damaged due to heavy use.	Lifecycle	2015	3,663
Summary			467,674						581,284

	indicates possible failure in the future.								
Window	Windows – this area is in need of window replacement. The north wall of the dining room	2014	74,874	Student Union	Wood Windows Renewal	Auto generated renewal for Wood Windows. System Description: The building fenestration includes complex wood window assemblies that include	Lifecycle	2016	77,475

1. Review Capital Projects Identified by each NDUS School

Are schools nominating projects that are needed and are their cost estimates credible?

Review of Submitted NDUS Capital Projects		
A.	Are schools identifying and submitting projects that are really needed, based on condition?	YES
B.	Are schools proposing credible budgets for submitted projects?	YES
C.	Do schools have more needs than the projects they are submitting for funding?	YES
	Conclusion: Can NDUS Administrators have confidence in the need for and costs of projects submitted by each school?	**YES**

2. Review Heating Plants' Condition

Which plants are most in need of urgent repair?

NDUS Assessed Heating Plants, by 6YR Facility Condition Index (FCI)

	SCH-Building	SCHOOL	CRV	6YR FCI	6YR FCI %	6YR FCI $	
	Valley City State University	VCSU	4,518,000	275%	275%	12,426,000	Replace?
	Bismarck State College	BSC	787,000	126%	126%	991,000	
	ND State College of Science	NDSCS	9,893,000	73%	73%	7,250,000	
	North Dakota State University	NDSU	15,221,000	59%	59%	8,919,000	Poor
	Dickinson State University	DSU	4,968,000	54%	57%	2,661,000	
	University of North Dakota	UND	21,623,000	28%	28%	6,037,000	Fair
	Dakota College at Bottineau	DCB	2,021,000	27%	27%	545,000	
	Minot State University	MiSU	6,863,000	14%	14%	994,000	
	Williston State College	WSC	2,000,000	11%	11%	214,000	
	Mayville State University	MaSU	4,955,000	0%	0%	7000	Good
	Lake Region State College	LRSC	375,000	0%	0%	0	
	TOTAL of ASSESSED BUILDINGS		**73,224,000**	55%	57%	**40,044,000**	

Quality labels per APPA standard definitions

2. Review Heating Plants' Condition

Which plants' needs are most urgent?

Heating Plant Needs	Replace-in-Kind Renewal Estimate*		Subtotal
Immediate Needs Two schools have plants that experienced failures during the 2013-'14 winter and have immediate renewal needs:		12,426,000	**$ 21,345,000**
		8,919,000	
Within 2 Years Two schools have plants in need of major renewals within 2 years:	UND WSC	6,037,000 215,000	**6,252,000**
Within 3-4 Years Five schools have plants in need of renewals within 3-4 years:	NDSCS DSU MiSU BSC DCB	7,250,000 2,661,000 995,000 991,000 545,000	**12,436,000**
Good Condition Two schools have plants currently in good operating condition:	MaSU LRSC	7,000 0	**7,000**
TOTAL FOR ALL HEATING PLANTS			**$ 40,040,000**

3. Assess the Condition of Sample Buildings

111 - BUILDING EXECUTIVE SUMMARY REPORT

Bismarck State College

Appropriated - Assessed

Armory

Asset Number	15	Year Built	1962
Building GSF	39,112	Inspection Date	2014
Floors	1		
Ownership	Client Owned		
Current Use	Athletic Facility / Gymnasium		

Armory

What is our condition?

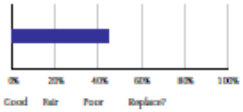
Deferred Maintenance Needs (incl. next 5 YR, in current $, rounded)	$3,673,463
Replacement Value	$8,220,623

The Facility Condition Index (FCI) is a ratio of the building's needs to its replacement value. FCI is calculated by dividing the sum of the near term (5 years) Requirement Costs by the current replacement value of the asset(s).

5 Year Facility Condition Index (FCI)

- 45%

Poor



What are potential projects?

Costs are in thousands

Life Safety	Building Code	Roof	Ext Envelope	MEP	Elevator	Int Constr + Structr	Fire Protection	FFE and Site	Other DM	SUBTOTAL DEFERRED MAINT.	FCI	ADA	HAZMAT	SECURITY	Program	Other	Subtotal Program Cost	PI	Subtotal DM +Prog Cost	FCNI
0	0	470	349	1,209	0	1,437	0	78	0	3,673	0.45	0	0	0	0	0	0	0.00	3,673	0.45

Five Year Needs by Major System Group

Requirements List

Ext Envelope

Name	Primo System	Category	Priority	Action Year	Requirement Cost
Door Assembly - 3 x 7 HM Renewal	B2020 - Exterior Doors	Lifecycle	5- Due within 5 Years of Inspection	2019	8,488
Door Assembly - 6 x 7 Storefront Renewal	B2020 - Exterior Doors	Lifecycle	5- Due within 5 Years of Inspection	2019	45,757
Aluminum Windows - Large Units Renewal	B2020 - Exterior Windows	Lifecycle	5- Due within 5 Years of Inspection	2019	252,564
Door Assembly - 3 x 7 Storefront Renewal	B2020 - Exterior Doors	Lifecycle	5- Due within 5 Years of Inspection	2019	29,202
Overhead Sectional Doors - Electric Operation Renewal	B2020 - Exterior Doors	Lifecycle	6- Due within 6 Years of Inspection	2020	13,278
Subtotal					349,350

FFE and Site

Name	Primo System	Category	Priority	Action Year	Requirement Cost
Fixed Seating - Bleachers Renewal	E - Equipment and Furnishings	Lifecycle	5- Due within 5 Years of Inspection	2019	77,735
Subtotal					77,735

Int Constr + Structr

Name	Primo System	Category	Priority	Action Year	Requirement Cost
GWB Walls - Standard (Non Painted) Renewal	C1010 - Partitions	Lifecycle	6- Due within 6 Years of Inspection	2020	6,056

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111 - BUILDING EXECUTIVE SUMMARY REPORT

Name	Primo System	Category	Priority	Action Year	Requirement Cost
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	C3010 - Wall Finishes	Lifecycle	6- Due within 6 Years of Inspection	2020	86,517
ACT System - Standard Renewal	C3030 - Ceiling Finishes	Lifecycle	6- Due within 6 Years of Inspection	2020	324,879
Swinging Doors - 3 x 7 Wd Renewal	C1020 - Interior Doors	Lifecycle	6- Due within 6 Years of Inspection	2020	236,804
Restroom Accessories - Standard Renewal	C1030 - Fittings	Lifecycle	6- Due within 6 Years of Inspection	2020	60,568
Toilet Partitions - Painted Metal Renewal	C1030 - Fittings	Lifecycle	6- Due within 6 Years of Inspection	2020	22,091
Carpeting - Broadloom Renewal	C3020 - Floor Finishes	Lifecycle	5- Due within 5 Years of Inspection	2019	586,817
VCT - Quality Renewal	C3020 - Floor Finishes	Lifecycle	5- Due within 5 Years of Inspection	2019	5,626
Folding Partitions - Deluxe Renewal	C1010 - Partitions	Lifecycle	5- Due within 5 Years of Inspection	2019	3,540
Fittings - Signage (Room Numbering and Identification) Renewal	C1035 - Identifying Devices	Lifecycle	5- Due within 5 Years of Inspection	2019	41,823
Rubberized Athletic Flooring Renewal	C3020 - Floor Finishes	Lifecycle	6- Due within 6 Years of Inspection	2020	44,275
Subtotal					1,436,635

MEP

Name	Primo System	Category	Priority	Action Year	Requirement Cost
Roofing Unitary AC - Cooling w/Gas Heat Renewal	D3050 - Terminal and Package Units	Lifecycle	5- Due within 5 Years of Inspection	2019	47,127
HVAC Controls - Basic Pneumatic Renewal	D3060 - Controls and Instrumentation	Lifecycle	5- Due within 5 Years of Inspection	2019	86,536
Boiler HW - Gas Fir					220,770
Window AC Units - R					14,958
Unit Heaters - Hot W					66,883
Scoreboard - Singl					22,196
Exhaust System - Ge					27,652
Distribution Equipm Feeders - 400A 208/					156,178
Main Electrical Servi Renewal					55,062
Branch Wiring - Rep					407,628
Telephone System -					127,166
Exit & Emergency Li Renewal					44,564
Distribution - Heati Renewal					53,635
Subtotal					1,339,354

Other

					Requirement Cost
Asbestos Abatement					0
Subtotal					0

Roof

					Requirement Cost
Single Ply Membrane					470,350
Subtotal					470,350
Overall					3,673,464

System Lifecycle Assessment

- Visual + interviews
- "Replace-in-kind" for existing use
- Costs from R.S. Means, adjusted for local markets
- No upgrades for program, use, capacity or hazmat, etc.

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3. Assess the Condition of Sample Buildings

Which sample buildings are in bad condition?

(Sample buildings shown, ranked worst to best FCI)

NDUS Assessed Sample Buildings, by 6YR Facility Condition Index (FCI)

SCH-Building	AGE	6YR FCI $/SF	6YR FCI %	6YR FCI $	
DCB-Old Main	108	204	91%	5,068,000	Replace? $35,921,000
VCSU-McFarland Hall	122	205	76%	13,359,000	
LRSC-Student Union	48	98	71%	4,274,000	
VCSU-McCarthy Hall	84	219	70%	5,586,000	
NDSU-Walster Hall	55	158	63%	7,634,000	
NDSU-E. Morrow Lebedeff Hall	61	131	58%	4,557,000	Poor $86,394,000
WSC-Stevens Hall Addition	39	325	57%	4,951,000	
MaSU-Old Main	124	142	56%	7,836,000	
DCB-Nelson Science Center	42	125	53%	2,004,000	
NDSU-Van Es Hall	38	145	53%	6,305,000	
NDSU-Civil & Industrial Engn'g	49	125	50%	4,041,000	
DSU-May Hall	90	134	50%	11,148,000	
DSU-South Campus Classroom	64	87	46%	1,140,000	
BSC-Armory	52	94	45%	3,673,000	
MaSU-Fieldhouse	54	95	44%	3,177,000	
NDSCS-Blikre Activities Center	37	77	44%	7,951,000	
NDSU-Stevens Hall	48	121	43%	5,941,000	
MiSU-Dome	33	130	41%	19,890,000	
LRSC-Main Building	48	81	40%	3,780,000	
BSC-Schafer Hall	53	107	39%	7,638,000	Fair $73,792,000
MaSU-Classroom Building	46	91	39%	1,970,000	
DCB-Thatcher Hall	65	92	36%	5,515,000	
VCSU-Graichen Gym	91	91	35%	1,744,000	
DSU-South Campus Office	64	82	35%	250,000	
WSC-Crighton Hall	38	86	35%	1,813,000	
UND-O'Kelly Hall	67	61	34%	8,127,000	
UND-Bryce Streibel Hall	29	72	33%	2,117,000	
NDSU-Ceres Hall	104	55	30%	3,590,000	
UND-School of Med Health Sci	64	55	30%	15,120,000	
UND-Babcock Hall	106	48	26%	1,142,000	
NDSCS-Ballweber Hall	58	33	24%	866,000	
BSC-Technical Center	39	45	20%	4,236,000	
MiSU-Old Main	101	81	19%	8,888,000	
LRSC-Library	48	40	17%	596,000	
NDSU-Sudro Hall	55	42	16%	2,636,000	
NDSU-Quentin Burdick Bldg	22	40	15%	4,338,000	
UND-Harrington Hall	62	22	14%	1,404,000	
DSU-Murphy Hall	44	29	12%	1,802,000	
MiSU-Swain Hall	62	43	9%	3,338,000	Good $4,249,000
NDSCS-Horton Hall	87	9	5%	506,000	
WSC-Western Star Career Ctr	3	12	3%	405,000	
TOTAL of ASSESSED BUILDINGS	**61**	**85**	**34%**	**200,356,000**	

Quality labels per APPA standard definitions

3. Assess the Condition of Sample Buildings

Which sample buildings need the most $$?

(Sample buildings shown, ranked most to least $$ needed)

NDUS Assessed Sample Buildings, by 6YR Def'd Maintenance $$ Needs

SCH-Building	AGE	6YR FCI $/SF	6YR FCI %	6YR FCI $		
MiSU-Dome	33	130	41%	19,890,000	$ 10+ M	$60 M
UND-School of Med Health Sci	64	55	30%	15,120,000		
VCSU-McFarland Hall	122	205	76%	13,359,000		
DSU-May Hall	90	134	50%	11,148,000		
MiSU-Old Main	101	81	19%	8,888,000	< $ 10 M	$76 M
UND-O'Kelly Hall	67	61	34%	8,127,000		
NDSCS-Blikre Activities Center	37	77	40%	7,951,000		
MaSU-Old Main	124	142	56%	7,836,000		
BSC-Schafer Hall	53	107	39%	7,638,000		
NDSU-Walster Hall	55	158	63%	7,634,000		
NDSU-Van Es Hall	38	145	53%	6,305,000		
NDSU-Stevens Hall	48	121	43%	5,941,000		
VCSU-McCarthy Hall	84	219	70%	5,586,000		
DCB-Thatcher Hall	65	92	36%	5,515,000		
DCB-Old Main	108	204	91%	5,068,000		
WSC-Stevens Hall Addition	39	325	57%	4,951,000	< $ 5 M	$62 M
NDSU-E. Morrow Lebedeff Hall	61	131	58%	4,557,000		
NDSU-Quentin Burdick Bldg	22	40	15%	4,338,000		
LRSC-Student Union	48	98	71%	4,274,000		
BSC-Technical Center	39	45	20%	4,236,000		
NDSU-Civil & Industrial Engn'g	49	125	50%	4,041,000		
LRSC-Main Building	48	81	40%	3,780,000		
BSC-Armory	52	94	45%	3,673,000		
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MaSU-Fieldhouse	54	95	44%	3,177,000		
NDSU-Sudro Hall	55	42	16%	2,636,000		
UND-Bryce Streibel Hall	29	72	33%	2,117,000		
DCB-Nelson Science Center	42	125	53%	2,004,000		
MaSU-Classroom Building	46	91	39%	1,970,000		
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VCSU-Graichen Gym	91	91	35%	1,744,000		
UND-Harrington Hall	62	22	14%	1,404,000		
UND-Babcock Hall	106	48	26%	1,142,000		
DSU-South Campus Classroom	64	87	46%	1,140,000		
NDSCS-Ballweber Hall	58	33	24%	866,000	< $ 1 M	$2.6 M
LRSC-Library	48	40	17%	596,000		
NDSCS-Horton Hall	87	9	5%	506,000		
WSC-Western Star Career Ctr	3	12	3%	405,000		
DSU-South Campus Office	64	82	35%	250,000		
TOTAL of ASSESSED BUILDINGS	**61**	**85**	**34%**	**200,356,000**		

3. Assess the Condition of Sample Buildings

What is the total deferred maintenance liability for NDUS?

NORTH DAKOTA UNIVERSITY SYSTEM
MASTER PLAN FACILITY CONDITION ASSESSMENTS
March 2014

6 Year System Lifecycle Deferred Maintenance + Extraordinary Repairs (Approp. Buildings, not incl. Heating Plants)	BSC	DCB	DSU	LRSC	MaSU	MiSU	NDSCS	NDSU	UND	VCSU	WSC	NDUS OVERALL
ASSESSED BUILDINGS FOR SAMPLE												
# Bldgs Assessed	3	3	4	3	3	3	3	8	5	3	3	41
GSF Assessed	205,796	100,974	162,602	74,800	110,300	340,900	184,102	445,362	526,259	109,926	70,257	2,331,278
% of Appropriated GSF Assessed	54%	66%	36%	34%	50%	51%	26%	17%	14%	31%	32%	24%
6YR Def'd Maint. Sample Cost/SF	$ 76 /SF	$ 125 /SF	$ 88 /SF	$ 116 /SF	$ 118 /SF	$ 94 /SF	$ 51 /SF	$ 88 /SF	$ 53 /SF	$ 188 /SF	$ 102 /SF	$ 86 /SF
6YR Def'd Maint. Sample Condition	Fair	Poor	Fair	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Fair	Fair
6YR Def'd Maint. Sample Cost $$	15,548,000	12,588,000	14,340,000	8,650,000	12,983,000	32,116,000	9,323,000	39,042,000	27,910,000	20,689,000	7,169,000	$ 200,358,000
EXTRAPOLATING SAMPLE TO ALL APPROPRIATED BUILDINGS												$ 78 /SF
Appropriated Bldgs GSF	378,505	152,049	448,739	220,735	219,910	671,070	699,534	2,681,384	3,677,025	352,962	219,173	9,721,086
Extrapolated 6YR Def'd Maint $$	**28,596,000**	**18,955,000**	**39,575,000**	**25,526,000**	**25,885,000**	**63,221,000**	**35,425,000**	**235,060,000**	**195,010,000**	**66,430,000**	**22,364,000**	**$ 756,047,000**

Heating Plants	BSC	DCB	DSU	LRSC	MaSU	MiSU	NDSCS	NDSU	UND	VCSU	WSC	OVERALL
GSF Assessed	2,000	2,117	7,030	n/a	7,000	13,618	20,756	23,002	40,000	8,601	800	124,924
6YR Def'd Maint Cost/SF	$ 493 /SF	$ 257 /SF	$ 379 /SF	n/a	$ 1 /SF	$ 73 /SF	$ 349 /SF	$ 388 /SF	$ 151 /SF	$ 1,445 /SF	$ 269 /SF	$ 321 /SF
Boiler Risk of Failure	P3 - within 3yr	P3 - within 3yr	P3 - within 3yr	n/a	Good cond.	P3 - within 3yr	P3 - within 3yr	P0 - Failed	P1 - witin 1yr	P0 - Failed	P1 - witin 1yr	
6YR Def'd Maint Repl in Kind Cost $$	**985,000**	**545,000**	**2,661,000**	n/a	**7,000**	**995,000**	**7,250,000**	**8,919,000**	**6,037,000**	**12,426,000**	**215,000**	**$ 40,040,000**

Site Infrastructure	BSC	DCB	DSU	LRSC	MaSU	MiSU	NDSCS	NDSU	UND	VCSU	WSC	OVERALL
Not in assessment scope, so reporting campus input:	not reported	not reported	not reported	not reported	not reported	not reported	**12,000,000**	not reported	not reported	not reported	not reported	**$ 12,000,000**

TOTAL 6 YEAR NEEDS	BSC	DCB	DSU	LRSC	MaSU	MiSU	NDSCS	NDSU	UND	VCSU	WSC	OVERALL
Appropriated Bldgs + H. Plants GSF	380,505	154,166	455,769	220,735	226,910	684,688	720,290	2,704,386	3,717,025	361,563	219,973	9,846,010
6YR Total Cost/SF	$ 78 /SF	$ 126 /SF	$ 93 /SF	$ 116 /SF	$ 114 /SF	$ 94 /SF	$ 76 /SF	$ 90 /SF	$ 54 /SF	$ 218 /SF	$ 103 /SF	$ 82 /SF
Estimated DM+ER, + HP + Site	**29,581,000**	**19,500,000**	**42,236,000**	**25,526,000**	**25,892,000**	**64,216,000**	**54,675,000**	**243,979,000**	**201,047,000**	**78,856,000**	**22,579,000**	**$ 808,087,000**

Does not include Site Infrastructure unless needs reported by the School

3. Assess the Condition of Sample Buildings

What is the total deferred maintenance liability for NDUS?

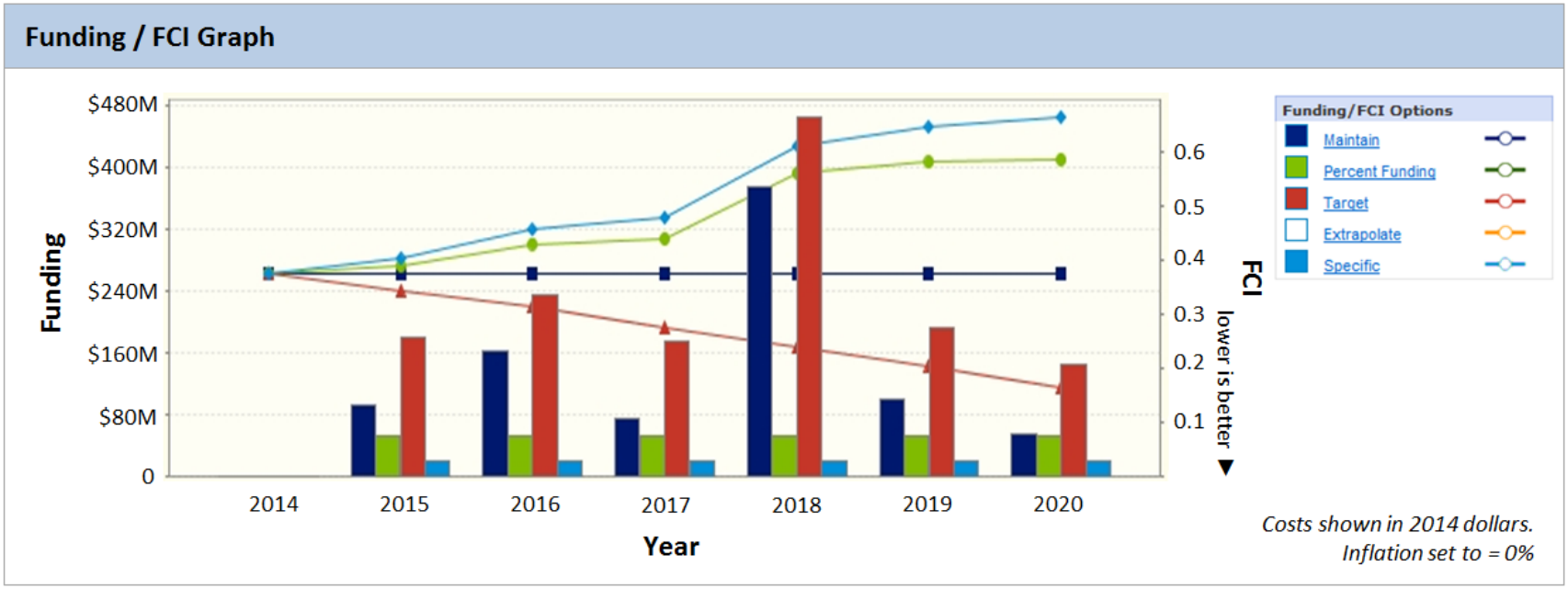
- 41 Buildings sampled
  (24% of Appropriated GSF)
- Def'd Maint: $86/SF
  "Fair"
  Weighted: $78/SF
- Def'd Maint. for 9.7M GSF: $756M
- Heating Plants: $40M
- Site (NDSCS only): $12M
- TOTAL: $808M

6 Year System Lifecycle Deferred Maintenance + Extraordinary Repairs (Approp. Buildings, not incl. Heating Plants)	NDUS OVERALL
ASSESSED BUILDINGS FOR SAMPLE	
# Bldgs Assessed	41
GSF Assessed	2,331,278
% of Appropriated GSF Assessed	24%
6YR Def'd Maint. Sample Cost/SF	$ 86 /SF
6YR Def'd Maint. Sample Condition	Fair
6YR Def'd Maint. Sample Cost $$	$ 200,358,000
EXTRAPOLATING SAMPLE TO ALL APPROPRIATED BUILDINGS	
Weighted 6YR DM Cost/SF	$ 78 /SF
Appropriated Bldgs GSF	9,721,086
Extrapolated 6YR Def'd Maint $$	**$ 756,047,000**
Heating Plants	OVERALL
GSF Assessed	124,924
6YR Def'd Maint Cost/SF	$ 321 /SF
Boiler Risk of Failure	Some
6YR Def'd Maint Repl in Kind Cost $$	**$ 40,040,000**
Site Infrastructure	OVERALL
Not in assessment scope, so reporting campus input:	**$ 12,000,000**
TOTAL 6 YEAR NEEDS	OVERALL
Appropriated Bldgs + H. Plants GSF	9,846,010
6YR Total Cost/SF	$ 82 /SF
Estimated DM+ER, + HP + Site	**$ 808,087,000**

Does not include Site Infrastructure unless needs reported by the School

3. Assess the Condition of Sample Buildings

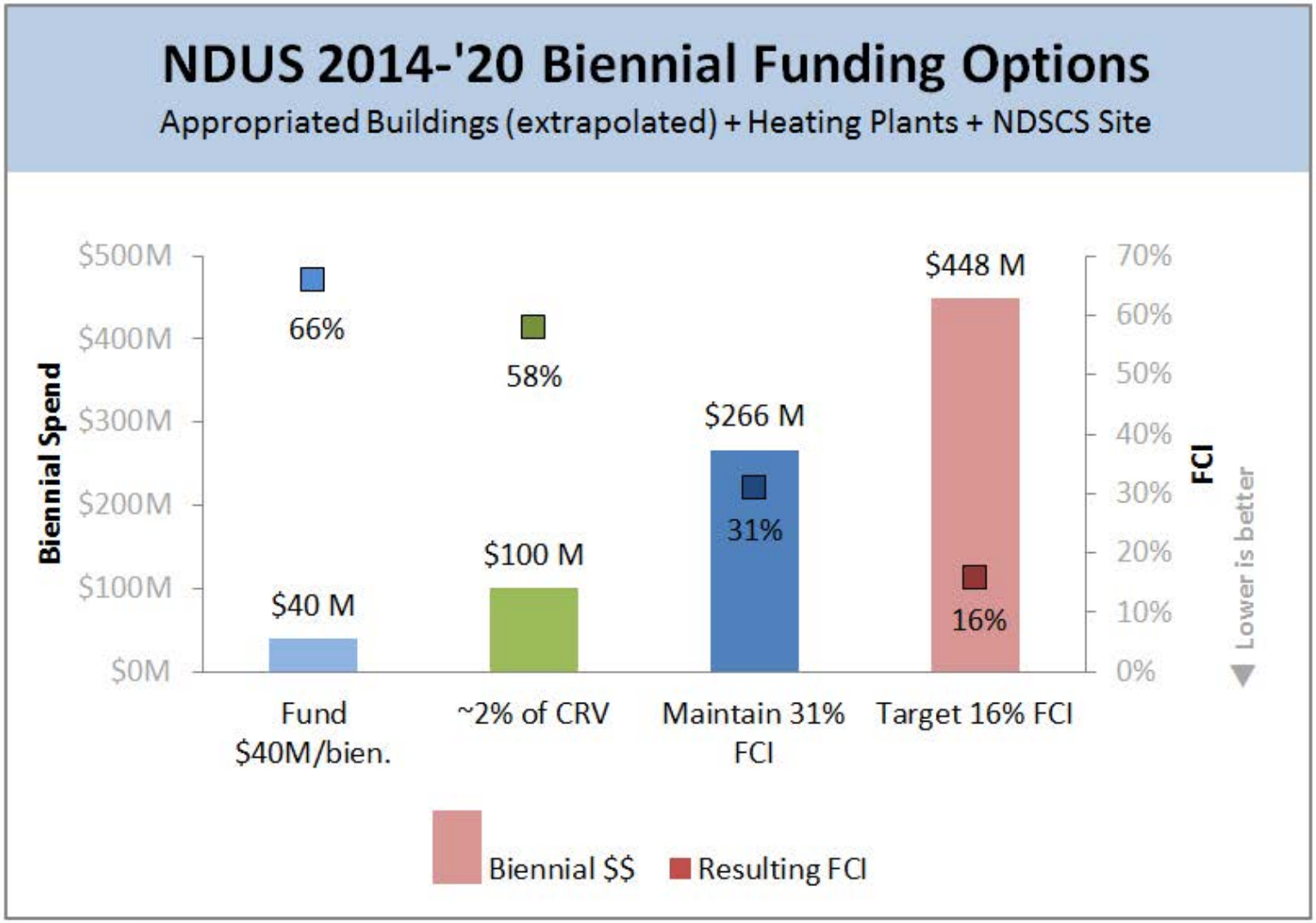
What is the total deferred maintenance liability for NDUS?



	Starting DM Backlog	Biennial Funding	6 YR Funding	Ending DM Backlog
Maintain "Fair"	$808M	$266M	$798M	$808M
~2% of CRV	$808M	$100M	$300M	$1,512M
Target "Better"	$808M	$448M	$1,345M	$404M
Continue Current	$808M	$40M	$120M	$1,720M

3. Assess the Condition of Sample Buildings

What is the total deferred maintenance liability for NDUS?



NDUS Systemwide Master Plan Report

The Systemwide Master Plan report also contains sections covering:

- Deferred Maintenance and Capital Project Approval Process
- Review of Individual Master Plans
- Capital Request Evaluations
- Research and Development Issues
- I.T. Infrastructure Review (to be added to final version)

These sections primarily contain recommendations for system and campus actions.

Section 5

Review of Individual Master Plans

Identify Space Needs

Given the value of the physical space assets and the fiduciary responsibility to maintain them, investment in space management tools and resources is merited, especially if one considers the cost of constructing new buildings. For these fiscal reasons, space inventory and management is an industry best practice.

- Facilitate development of an accurate space and classroom inventory
- Require that plans include a space utilization study or analysis
- Require that plans include a space needs analysis with a projection of space needs and clearly communicate the major drivers of facility needs (e.g., enrollment, pedagogy, deferred maintenance, housing)

Revise Master Planning Process

- Align master planning with long-range strategic planning horizons of 5-10 years (6 years with biennial cycle)

- Separate master planning from capital planning
  - Perform capital planning on an annual or biennial cycle

- Within the biennial for capital planning, allow for annual updates due to inflation, program changes, market conditions and/or other factors
  - Allow for an expedited process for campus self-funded projects (e.g., funded from gifts, grants, auxiliaries, etc.)

- Separate capital program-driven projects from maintenance-driven projects and develop a separate prioritization process at the system level for each

Section 6

CAPITAL REQUEST EVALUATIONS

CAPITAL REQUEST EVALUATIONS

- Implement a space inventory database

University of North Dakota
Fall 2013 Hdct 12,123
Fall 2013 FTE 12,606

	Classroom & Service	Teaching Labs & Service	Open Labs & Service	Research Labs & Service	Academic Offices & Space	Admin Offices & Space	Library	Assembly & Exhibit	Health Care Facilities	Other Academic Space	PE & Recreation	Student Center	Physical Plant	Residence Life	**Total ASF**
ASF/Hdct	15	10	9	19	60	1	14	9	3	5	17	26	44	86	**317**
ASF/FTE	14	10	8	18	58	1	13	9	3	5	16	25	42	83	**305**
Total ASF	**175,993**	**125,386**	**105,968**	**231,410**	**726,838**	**12,597**	**169,668**	**108,349**	**36,009**	**61,210**	**202,174**	**317,180**	**529,418**	**1,041,958**	**3,844,158**

North Dakota State University
Fall 2013 Hdct 13,672
Fall 2013 FTE 12,797

	Classroom & Service	Teaching Labs & Service	Open Labs & Service	Research Labs & Service	Academic Offices & Space	Admin Offices & Space	Library	Assembly & Exhibit	Health Care Facilities	Other Academic Space	PE & Recreation	Student Center	Physical Plant/ Support Facilities	Residence Life	**Total ASF**
ASF/Hdct	11	9	4	23	39	1	8	10	1	5	9	19	7	44	**189**
ASF/FTE	11	10	4	25	42	1	8	11	1	5	9	20	8	47	**202**
Total ASF	**146,304**	**122,257**	**51,515**	**319,063**	**531,191**	**8,207**	**105,890**	**140,600**	**14,367**	**66,467**	**120,385**	**258,009**	**101,705**	**604,193**	**2,590,153**

Minot State University
Fall 2013 Hdct 3,533
Fall 2013 FTE 2,710

	Classroom & Service	Teaching Labs & Service	Open Labs & Service	Research Labs & Service	Academic Offices & Space	Library	Assembly & Exhibit	Health Care Facilities	Other Academic Space	PE & Recreation	Student Center	Residence Life	**Total ASF**
ASF/Hdct	18	16	6	1	40	15	15	2	3	18	6	27	**168**
ASF/FTE	23	21	8	2	52	20	20	2	4	24	8	35	**219**
Total ASF	**62,245**	**57,284**	**21,156**	**4,309**	**142,178**	**53,495**	**53,107**	**6,594**	**10,226**	**64,009**	**21,871**	**95,829**	**592,303**

Campus Space Summaries

- Facilities information across the System was provided in gross square feet by building
  - Type I – Direct Academic Space
  - Type II – Other State Supported Space
  - Type III – Auxiliary Space

- Total of Types I and II is most applicable for this kind of analysis

- This analysis is usually done in assignable square feet (ASF), so the consultant used 65% of the GSF to approximate the ASF, which is the percentage recommended by the NDUS project manager

- NDUS is urged to look to whether additional reporting tables should be developed to more accurately reflect the onsite instruction

Campus Space Summaries

		On Campus		GSF			ASF		
		Fall 2013			GSF/ I+II			ASF/ I+II	
Institution	Abbr.	Head-count	FTE	Type I + II GSF	Head-count	FTE	Type I + II ASF	Head-count	FTE
Bismarck State College	BSC	2,375	2,955	360,635	152	122	234,413	99	79
Dakota College at Bottineau	DCB	396	502	144,974	366	289	94,233	238	188
Lake Region State College	LRSC	450	943	176,878	393	188	114,971	255	122
North Dakota State College of Science	NDSCS	1,599	2,295	792,364	496	345	515,037	322	224
Williston State College	WSC	487	593	220,379	453	372	143,246	294	242
Dickinson State University	DSU	1,088	1,201	469,952	432	391	305,469	281	254
Mayville State University	MaSU	583	749	261,738	449	349	170,130	292	227
Minot State University	MiSU	2,384	2,710	808,989	339	299	525,843	221	194
Valley City State University	VCSU	801	975	362,163	452	371	235,406	294	241
North Dakota State University	NDSU	13,672	12,797	2,230,939	163	174	1,450,110	106	113
University of North Dakota	UND	12,123	12,606	3,677,022	303	292	2,390,064	197	190
	Total:	**35,958**	**38,326**	**9,506,033**			**6,178,921**		

Source: NDUS 2013 Fall Enrollment Report, November 2013, Table 9B-Column B for Headcount, Table 6 for FTE

* GSF converted to ASF using 65% factor

Funding Issues

Funding Issues

- Address the significant deferred maintenance gap
- Consider an increase in biennial base funding (not one-time funding) for maintenance that is commensurate with national averages (2% of value) as a means to reduce additional deferred maintenance needs
- Consider a different, or expedited means of providing legislative approval for capital projects in order to reduce the time and subsequently the inevitable increase in cost

FUNDING ISSUES (CONTINUED)

- Support funding to provide adequate central resources for project planning and development
- Support funding for resources which will provide data on space utilization and building space inventory
- Raise the threshold value of projects which require legislative approval
- Fund municipal assessments separately from extraordinary repair budgets

North Dakota University System Systemwide Master Plan

Summary of Findings/Recommendations

Presented to the

North Dakota Legislative Branch
Higher Education Funding Committee

Thank you for your time and attention.

Are there any questions you would like to ask?