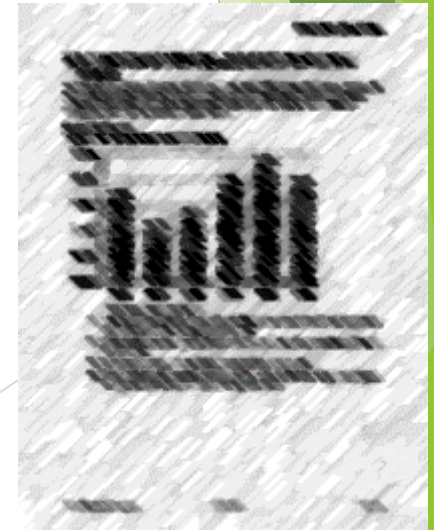
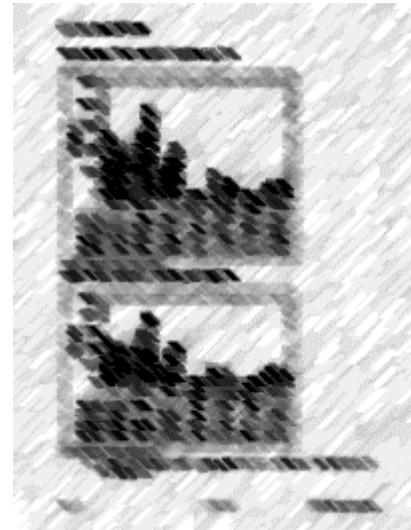
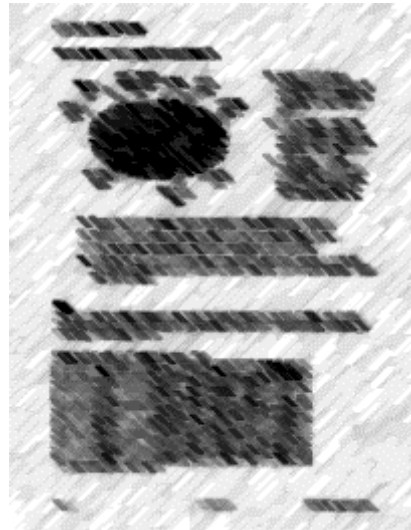


Environmental Scan

Environmental Scan

- ▶ Demographics: Service Area and Student
- ▶ Potential Future Students
- ▶ Enrollment Trends
- ▶ Regional Education Options
- ▶ Industry and Employment Trends



Executive summary of California Community Colleges

- ▶ With low tuition and a longstanding policy of full and open access, the CCCs are designed around a remarkable idea: that higher education should be available to everyone.
- ▶ The CCCs are equally remarkable for their versatility. They are the state's primary entry point into collegiate degree programs, the primary system for delivering career technical education and workforce training, a major provider of adult education, apprenticeship, and English as a Second Language courses, and a source of lifelong learning opportunities for California's diverse communities.
- ▶ The CCCs have made significant strides in the last five years through sustained reform efforts in the areas of student success, transfer, and career technical education. The colleges are now well-poised to build on this success and accelerate the pace of improvement.

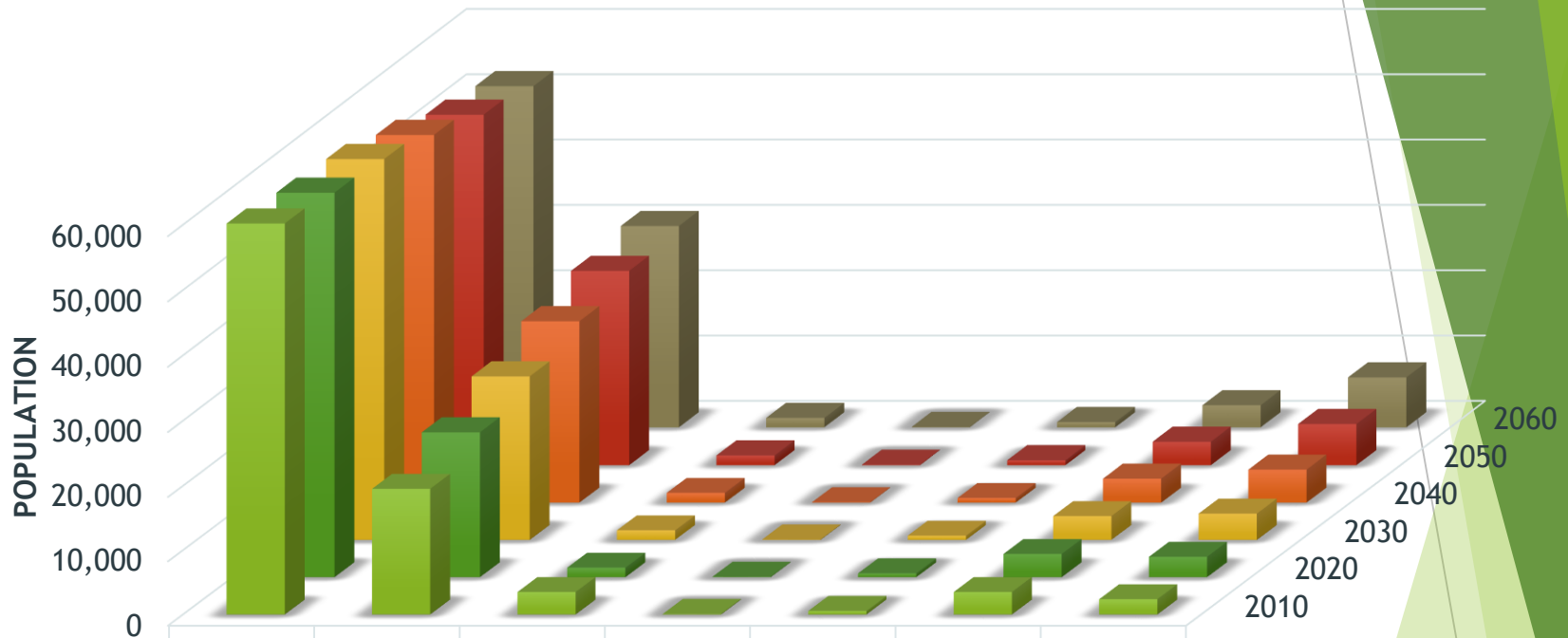
Mendocino College Mission

- ▶ Mendocino College partners with a dynamic community of diverse students to help them achieve their educational goals. Informed by research, reflection and dialogue, the College offers programs in **Basic Skills, Transfer Preparation and Career and Technical Education** as well as **Workforce Improvement**. The College demonstrates its commitment to student success through high-quality and innovative instruction, providing individual attention to student needs in an inclusive and accessible learning environment. Mendocino College embraces its role as an intellectual, economic and cultural anchor for the region.

History of California Community Colleges

- ▶ In 1907, the [California State Legislature](#), seeing a benefit to society in education beyond high school but realizing the load could not be carried by existing colleges, authorized the state's high schools to create "junior colleges" to offer what were termed "postgraduate courses of study" similar to the courses offered in just the first two years of university studies.
- ▶ In 1921, California passed legislation which allowed for the creation of community college districts. In September 1921, [Modesto Junior College](#) (the 16th oldest community college) became the first ever community college district. That launched the current model of community colleges that continued to offer trade studies such as mechanical and industrial arts but now included general education.

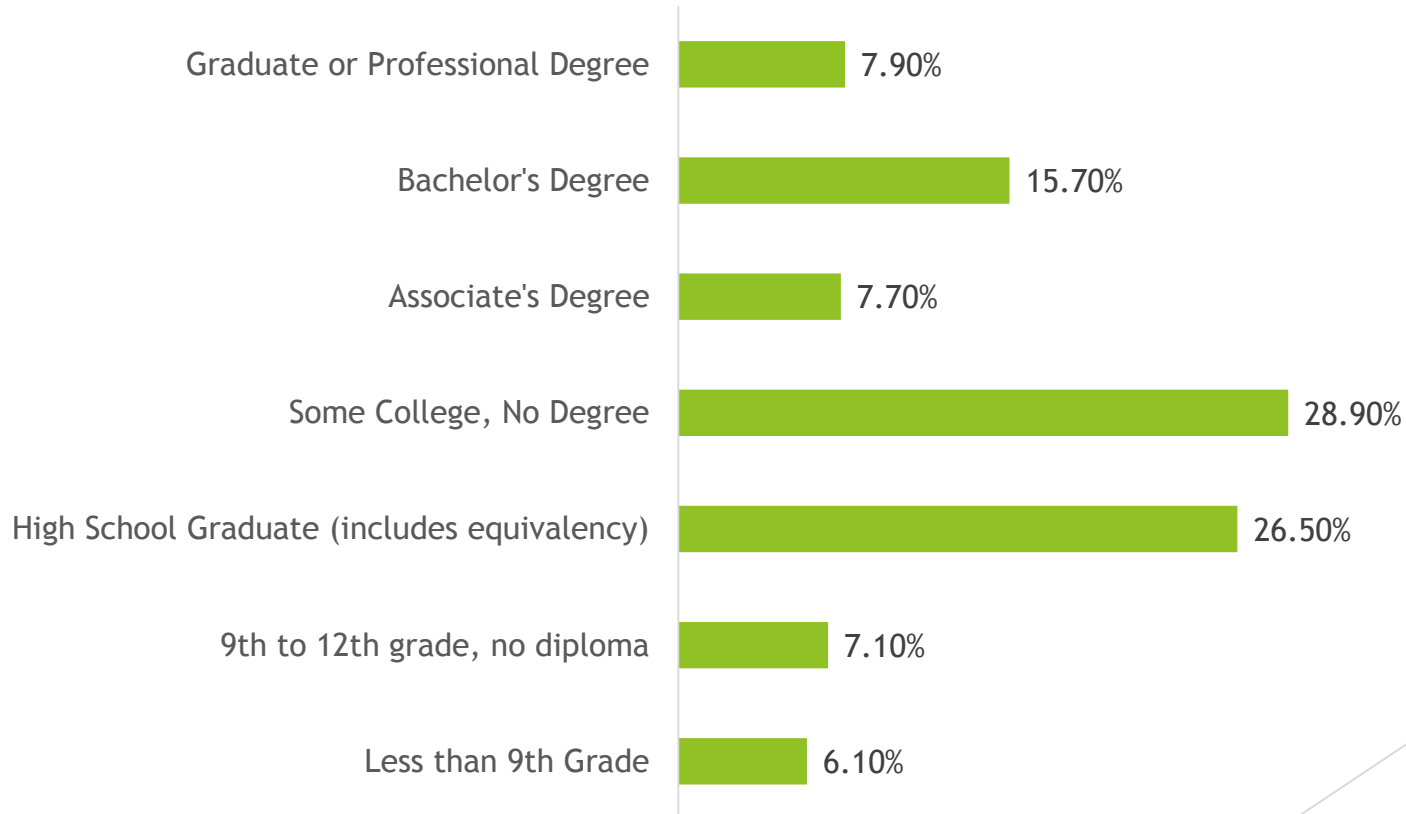
Mendocino County Population



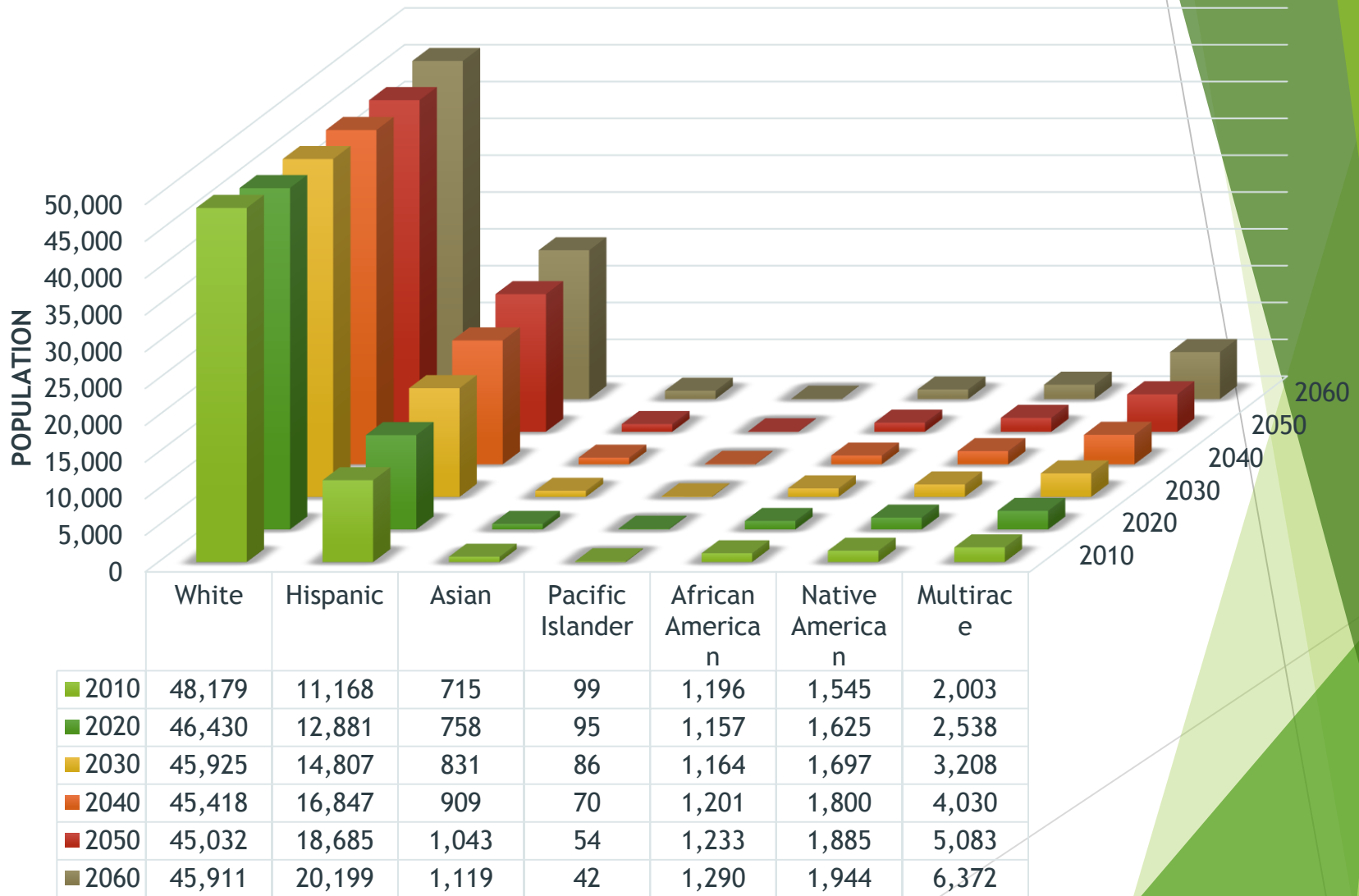
	White	Hispanic	Asian	Pacific Islander	African American	Native American	Multirac e
■ 2010	60,190	19,533	3,492	93	545	3,492	2,373
■ 2020	59,109	22,413	1,472	83	593	3,604	3,170
■ 2030	58,466	25,182	1,483	78	652	3,709	4,087
■ 2040	56,357	27,840	1,516	73	711	3,721	5,111
■ 2050	53,663	29,746	1,488	63	754	3,591	6,303
■ 2060	52,237	30,821	1,441	53	800	3,377	7,640

Mendocino County Education

2015

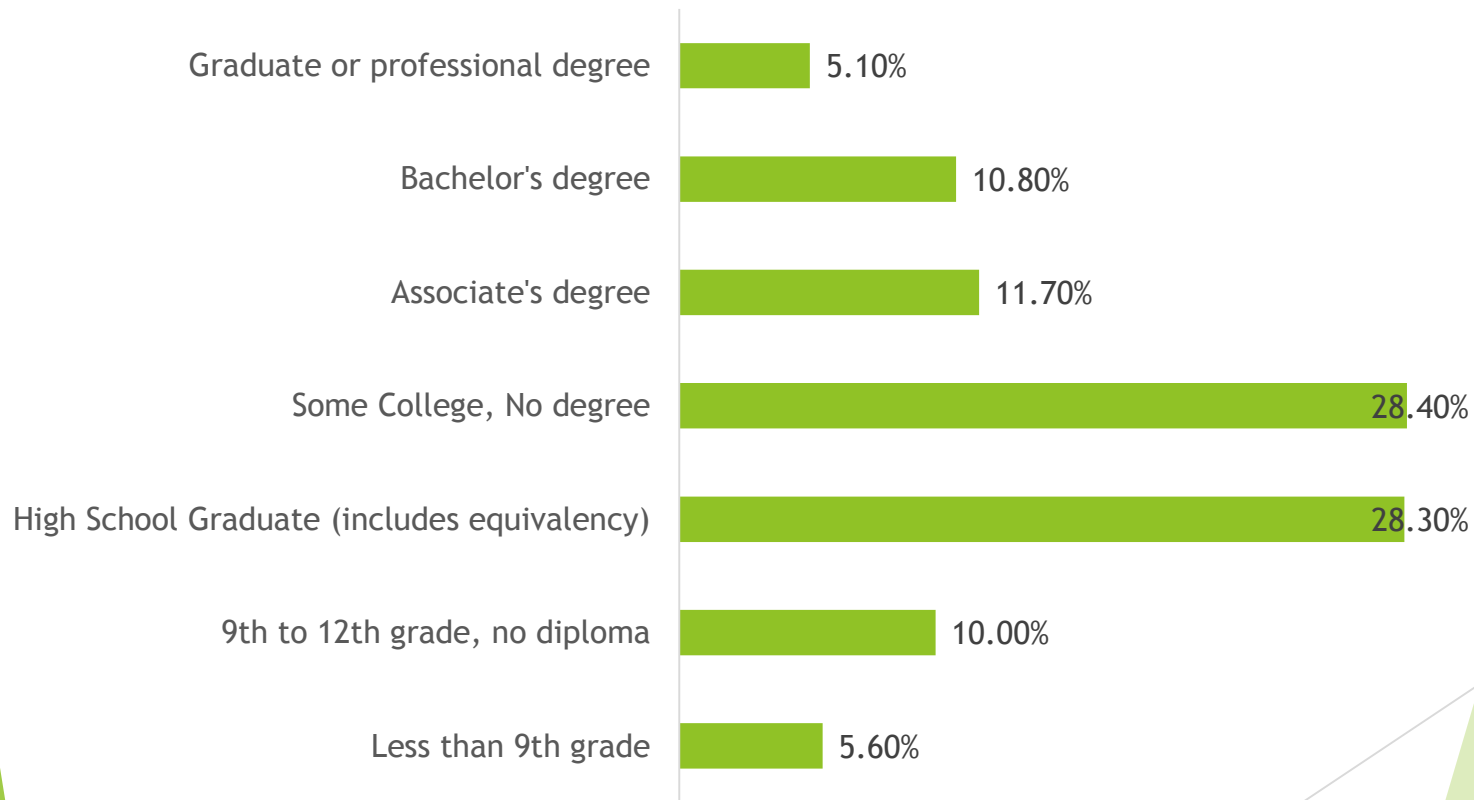


Lake County Population



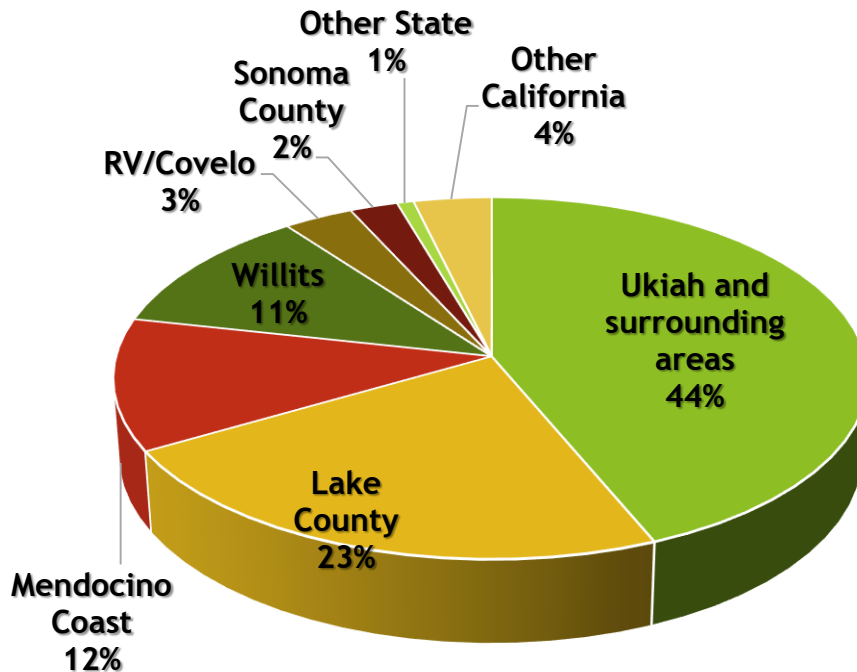
Lake County Education

2015



Location is Critical

Fall 2017 MLCCD Enrollment by Location



Projected Population Growth by Location

Location	2010-2030	2010-2030
	% Change	# Change
Mendocino County	7%	5,996
Lake County	4%	2,813

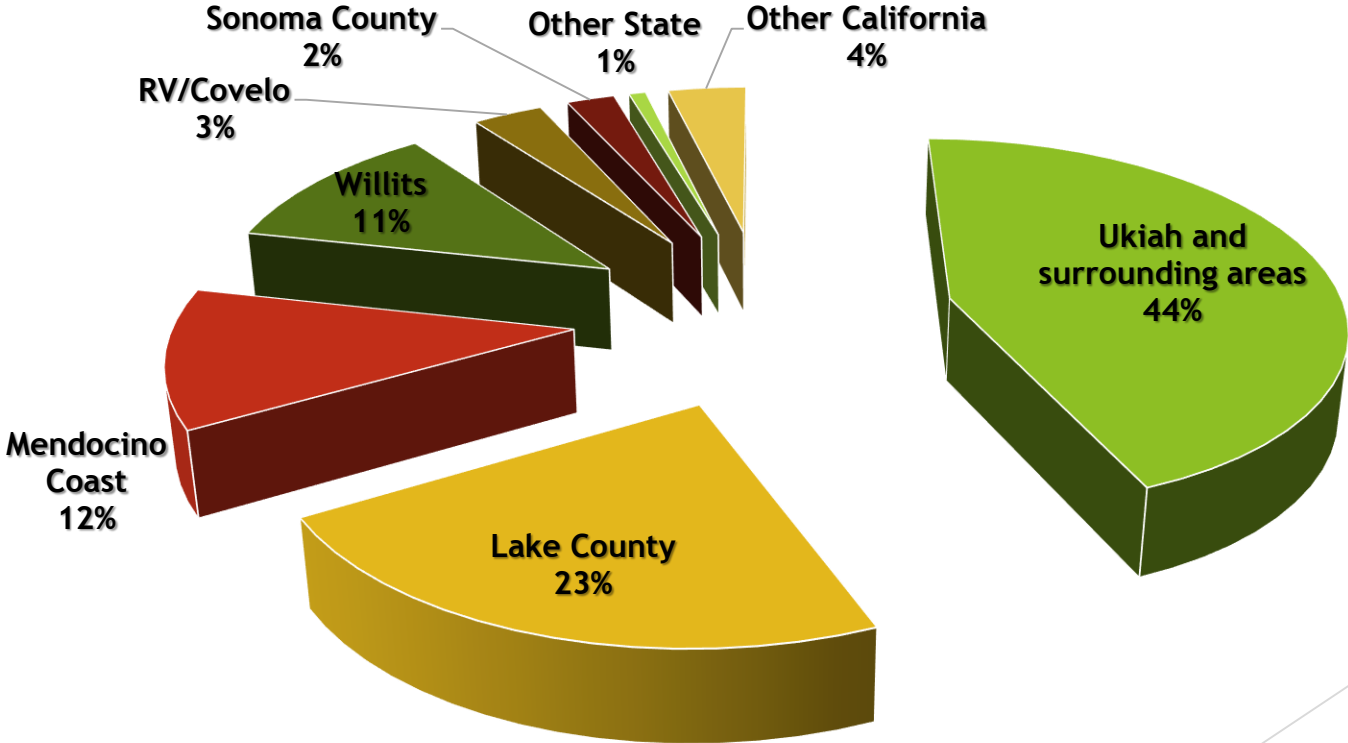
Aging Population – Mendocino County

Age	2010	%	2030	%	% Change 2010-2030
0-14	16,028	18%	15,656	17%	-2.4%
15 to 24	10,322	11%	11,074	12%	7.3%
25 to 34	10,694	12%	11,204	12%	4.8%
35 to 44	10,280	11%	10,828	12%	5.4%
45 to 54	12,361	14%	10,848	12%	12.3%
55 to 64	14,469	16%	9,851	11%	-32%
65 to 74	7,267	8%	10,580	11%	46%
75 and over	11,754	13%	13,616	15%	16%
Total	93,175	100%	93,657	100%	0.6%

Aging Population – Lake County

Age	2010	%	2030	%	% Change 2010-2030
0-14	11,137	18%	12,102	18%	9%
15 to 24	7,566	12%	8,100	12%	7%
25 to 34	6,656	11%	8,151	12%	23%
35 to 44	7,065	11%	8,172	12%	16%
45 to 54	10,263	16%	6,884	10%	-33%
55 to 64	10,688	17%	6,669	10%	-38%
65 to 74	6,612	11%	8,161	12%	24%
75 and over	4,910	8%	9,479	14%	93%
Total	64,897	100%	67,718	100%	4%

Where are students coming from?



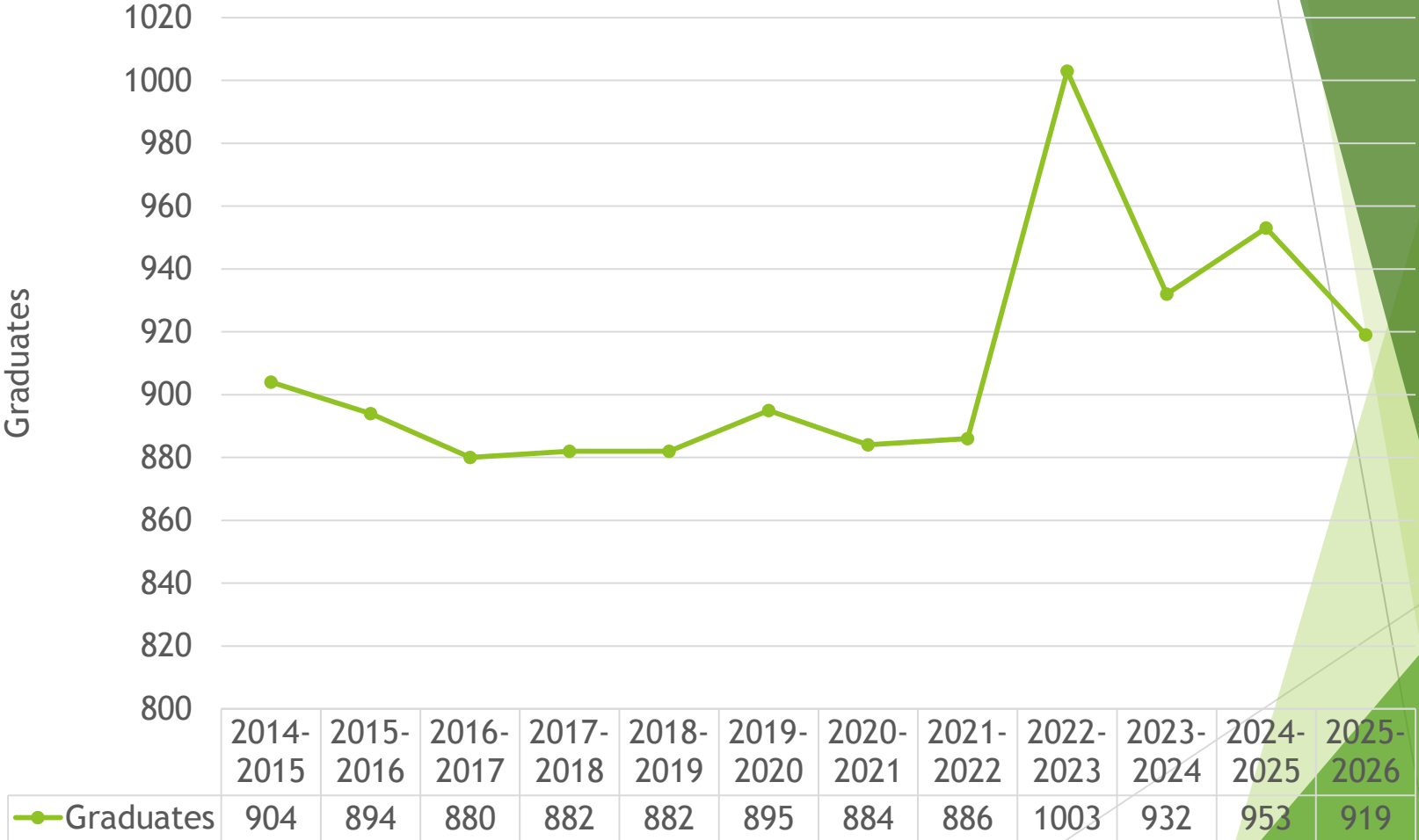
Students Arriving With Challenges

High School	Graduation Rate	English Learners	% Free Lunch
Redwood Academy	100%	2%	56.6%
Ukiah High	93.4%	14%	60.1%
Accelerated Achievement	78.6%	20%	80%
South Valley	78.1%	24%	85.1%
Anderson Valley	100%	19%	79.7%
Willits High	87.6%	9%	64.8%
Fort Bragg	93.4%	9%	56.9%
Point Arena	93.8%	15%	61.7%
Mendocino High	98%	3%	24%
Clear Lake High	98.7%	3%	46.1%
Kelseyville High	87.6%	6%	72.5%
Upper Lake	90.9%	2%	77.7%
Lake County Totals	85.3%	13%	75.7%
Mendocino County Totals	85.2%	22%	69.6%
State Totals	83.8%	22%	58.9%

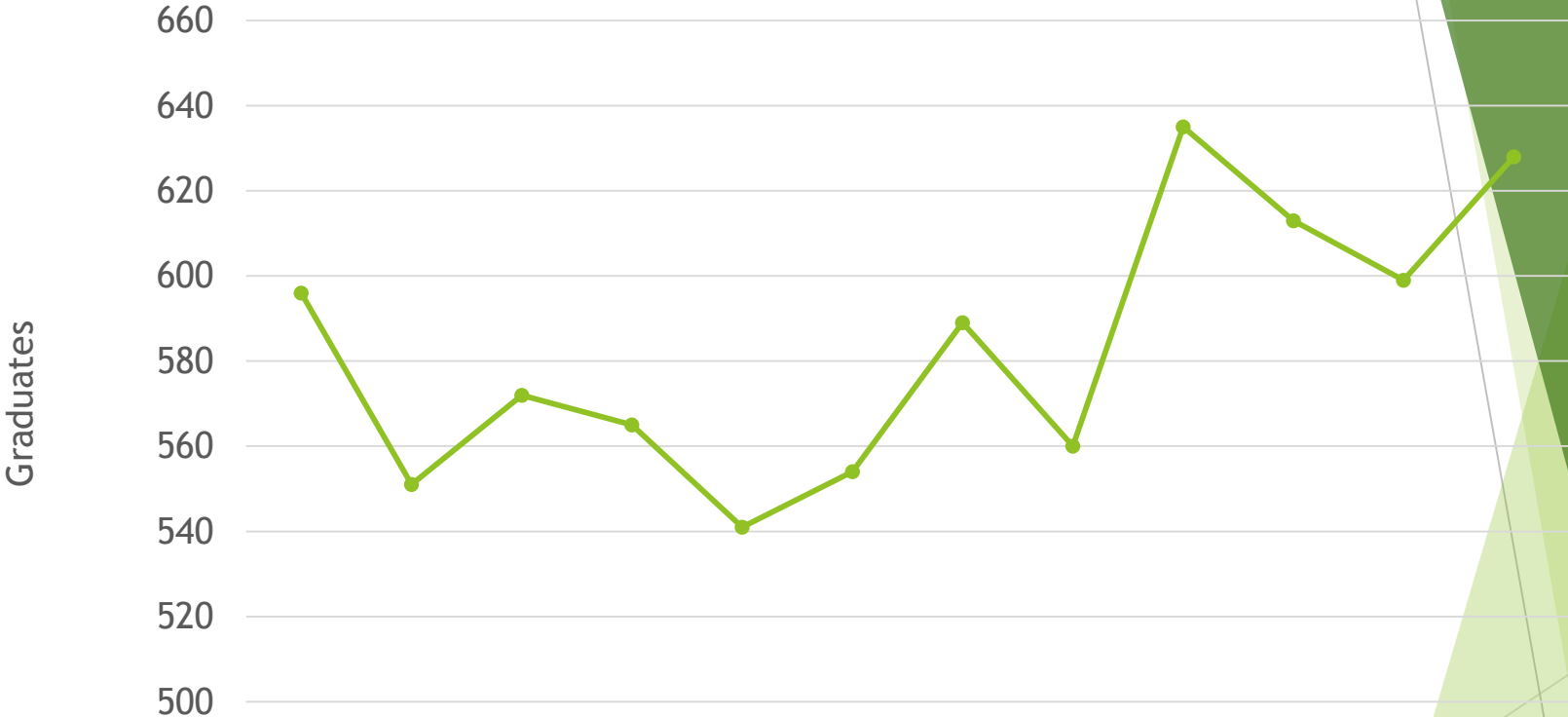
Basic Skills Needs (2016-2017)

High School	English	Math
Redwood Academy	13%	75%
Ukiah High	57%	81%
Accelerated Achievement	100%	100%
South Valley	100%	100%
Anderson Valley	43%	57%
Willits High	80%	84%
Fort Bragg	72%	69%
Point Arena	33%	100%
Mendocino High	0%	100%
Clear Lake High	50%	55%
Kelseyville High	68%	81%
Upper Lake	67%	64%
Lake County Totals	66%	71%
Mendocino County Totals	58%	81%
State Totals	60%	79%

Number of High School Graduates – Mendocino County

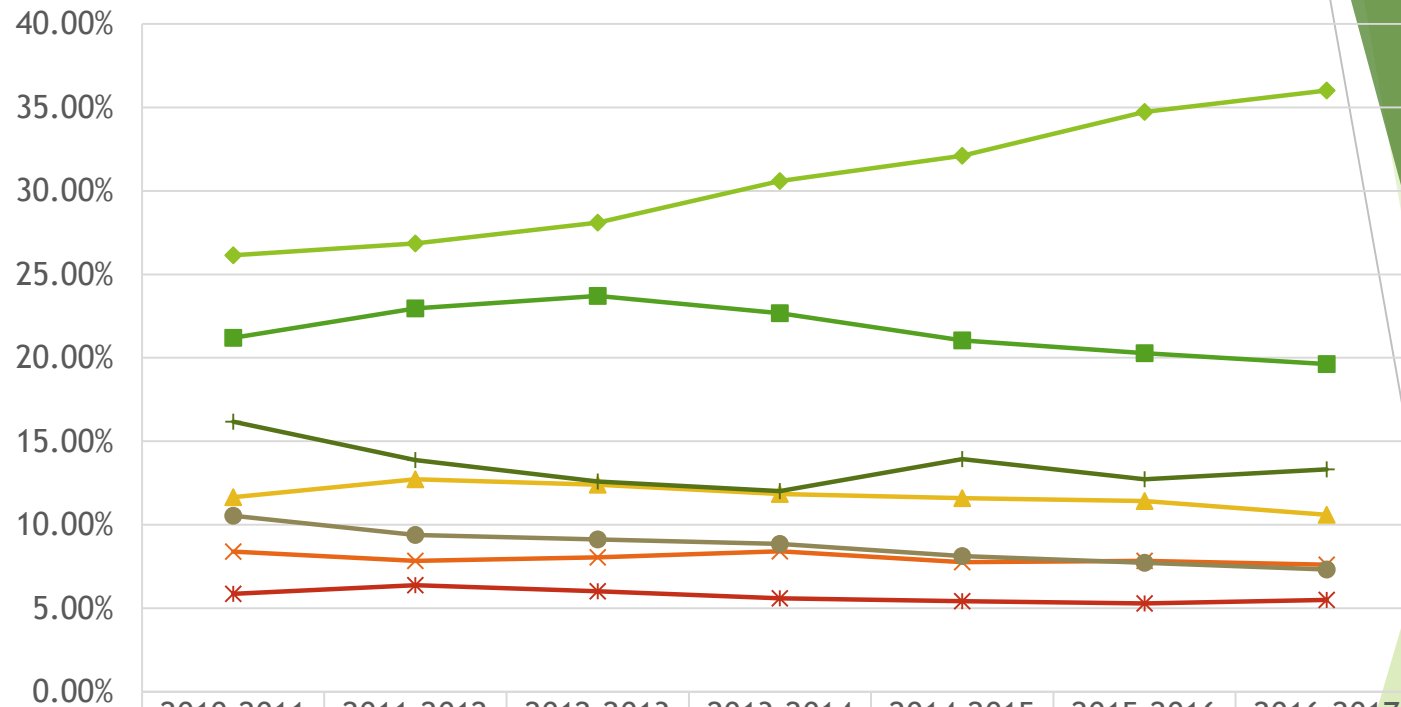


Number of High School Graduates – Lake County



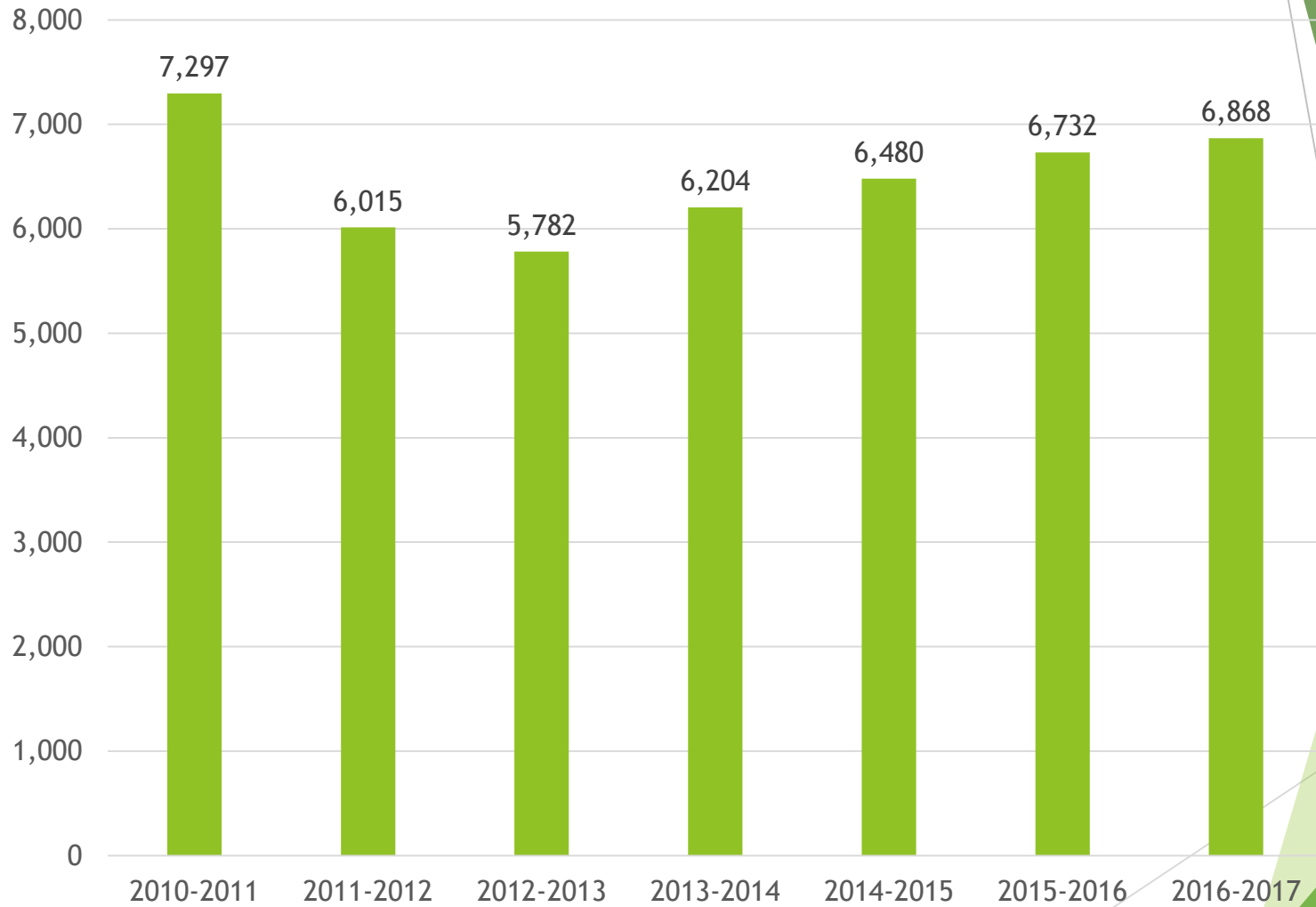
	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
Graduates	596	551	572	565	541	554	589	560	635	613	599	628

High School Direct Enrollment (Concurrent and Dual) Increase

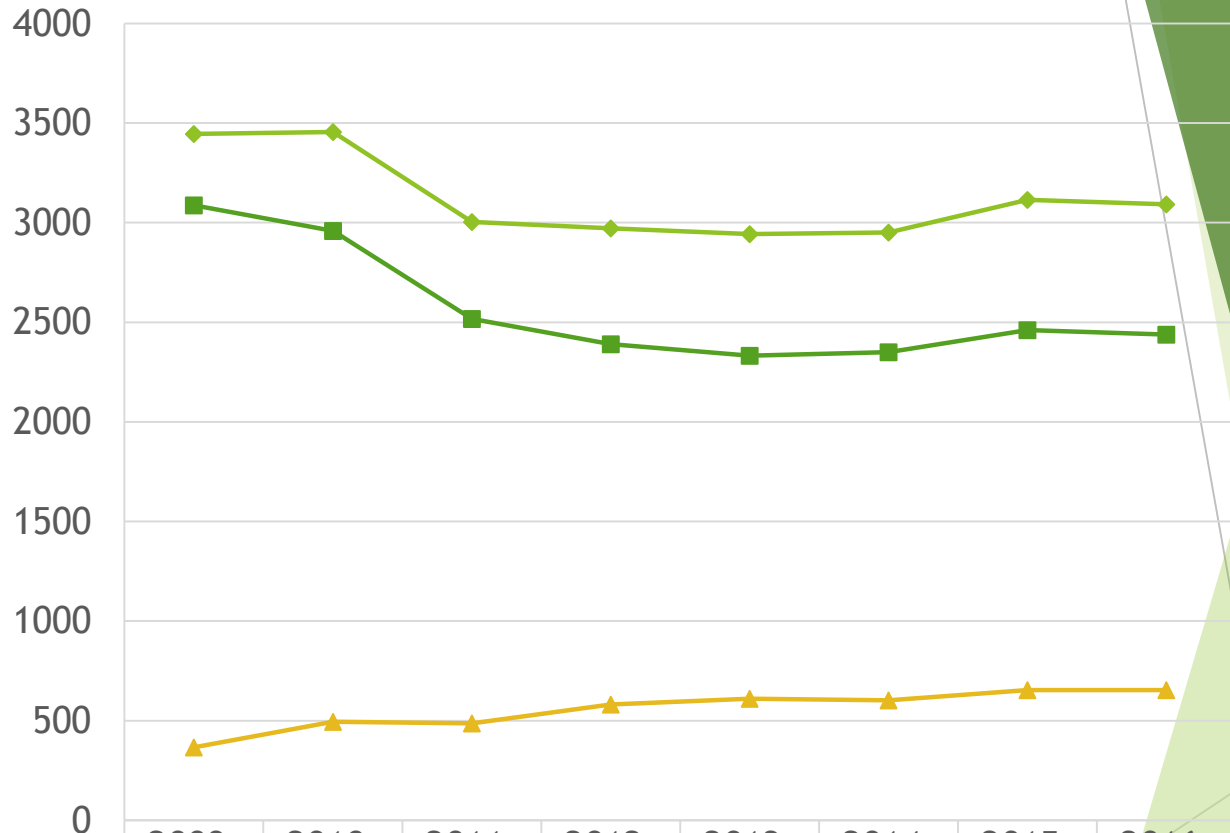


	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
19 or younger	26.15%	26.85%	28.10%	30.58%	32.10%	34.73%	36.02%
20 to 24	21.19%	22.96%	23.71%	22.68%	21.05%	20.28%	19.63%
25 to 29	11.65%	12.72%	12.40%	11.85%	11.60%	11.42%	10.60%
30 to 34	8.40%	7.83%	8.04%	8.41%	7.76%	7.83%	7.60%
35 to 39	5.87%	6.38%	6.02%	5.59%	5.43%	5.29%	5.49%
40 to 49	10.54%	9.38%	9.13%	8.85%	8.12%	7.72%	7.32%
50 or older	16.18%	13.88%	12.59%	12.02%	13.94%	12.72%	13.31%

Total Student Headcount

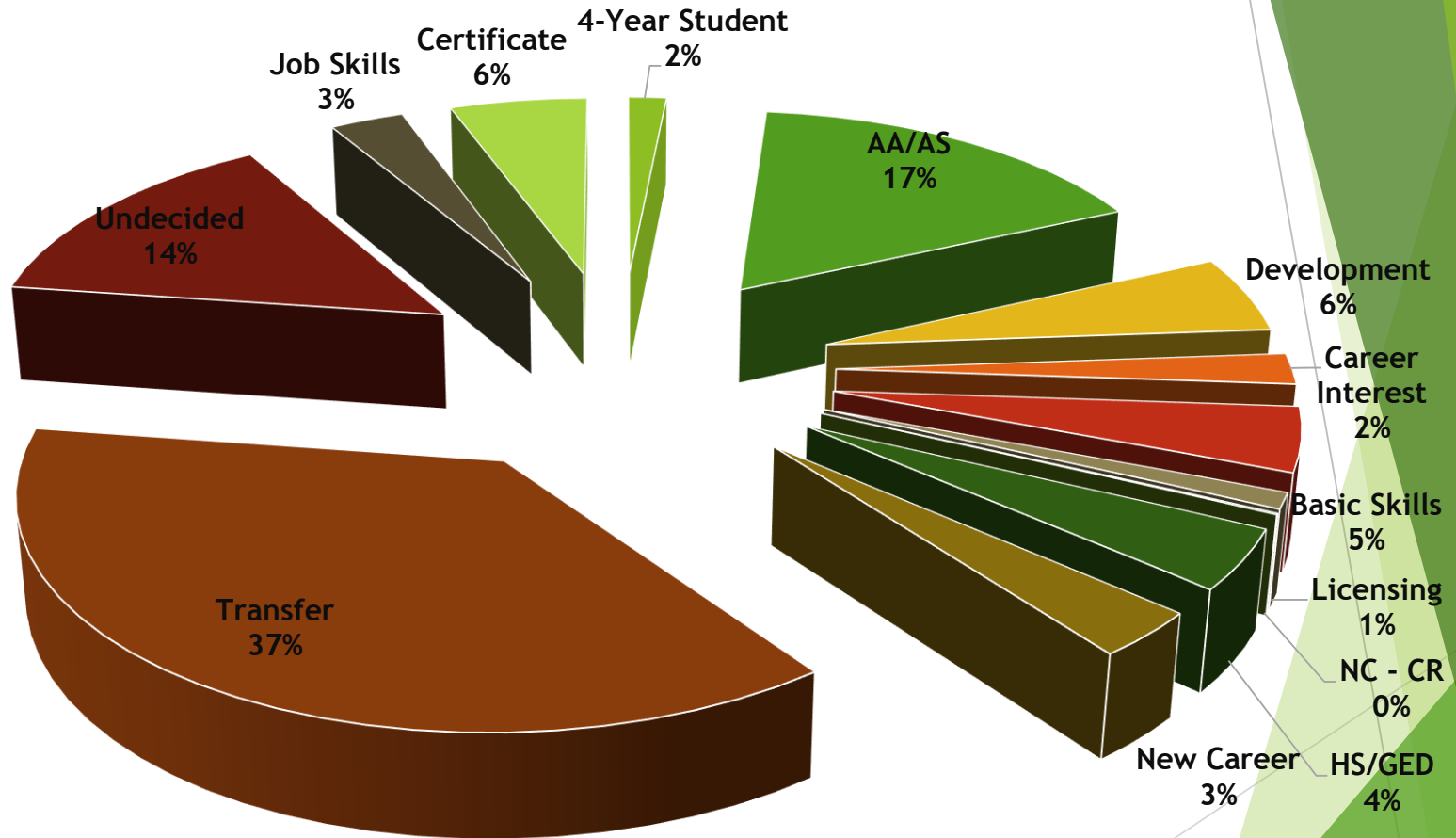


FTES Distribution

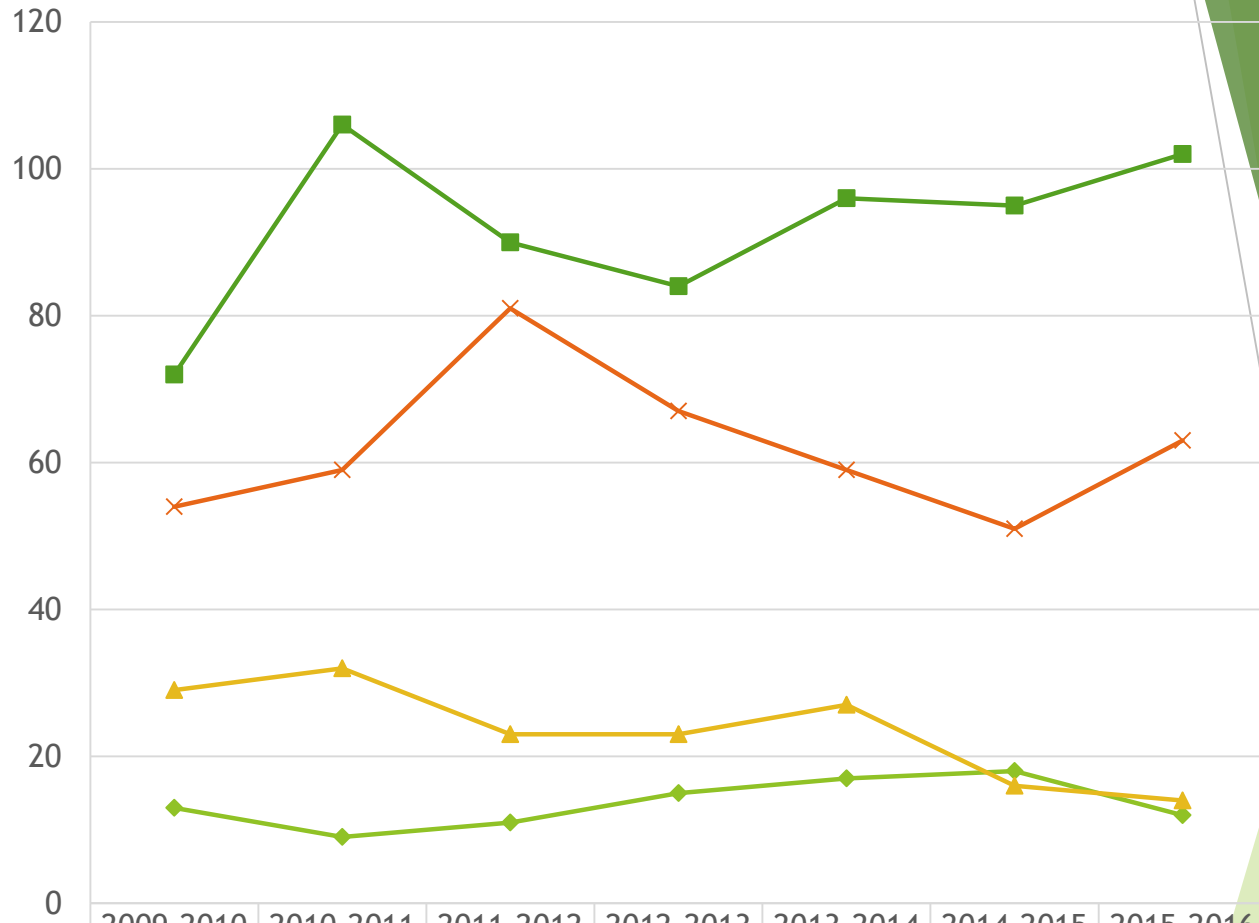


	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
◆ Total FTES	3444.92	3454.85	3004.51	2972.07	2942.49	2951.41	3115.14	3092.48
■ Non-Distance FTES	3087.71	2959.34	2517.19	2390.23	2331.99	2349.35	2460.59	2438.08
▲ Distance Education FTES	366.21	495.51	487.32	581.84	610.5	602.06	654.55	654.4

MLCCD Student Goals

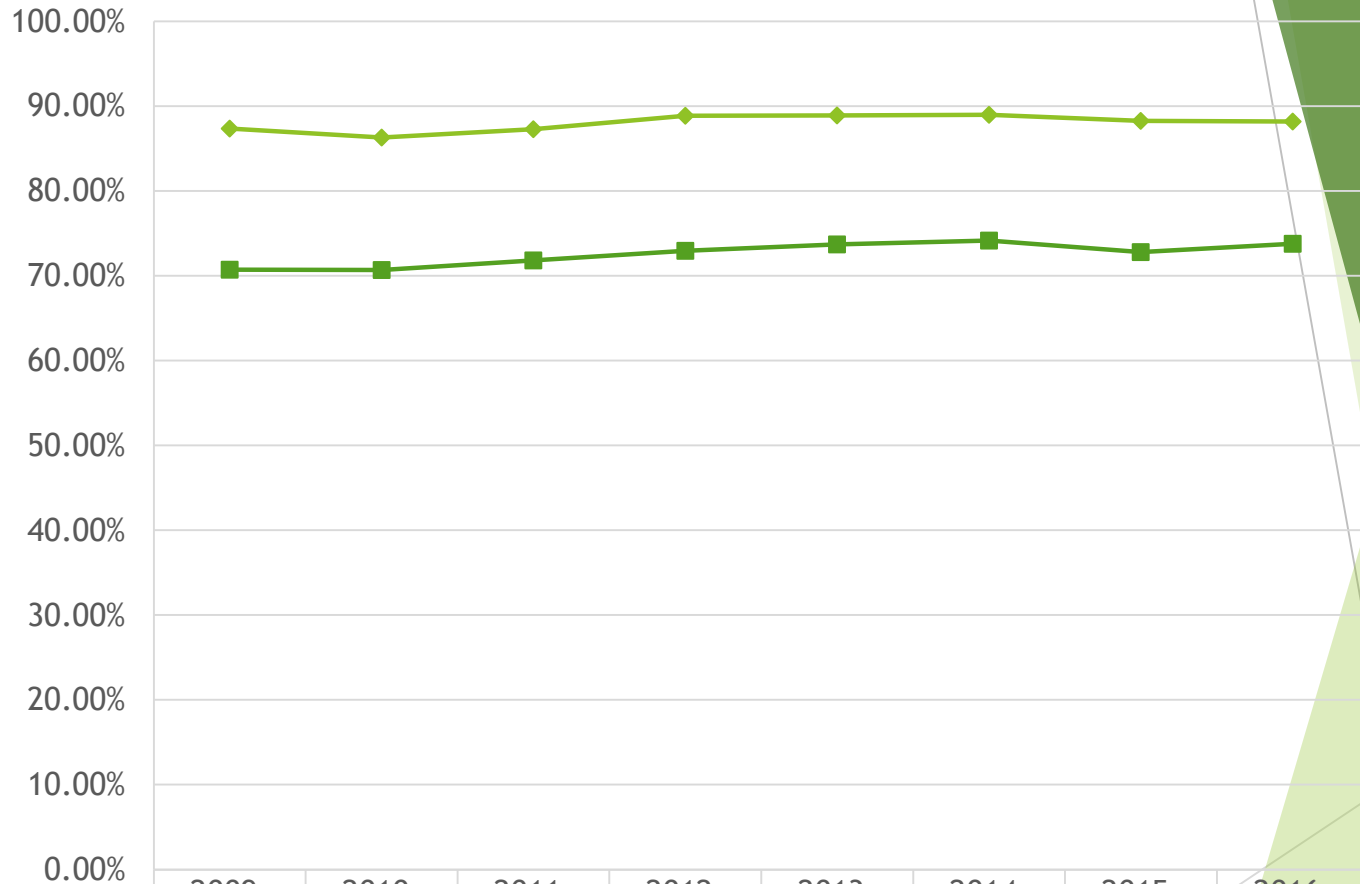


Transfers



	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
◆ UC	13	9	11	15	17	18	12
■ CSU	72	106	90	84	96	95	102
▲ In-State Private	29	32	23	23	27	16	14
✕ Out-of-State	54	59	81	67	59	51	63

Retention and Success Rates



◆ Retention Rate	87.35%	86.30%	87.27%	88.86%	88.90%	88.99%	88.25%	88.19%
■ Success Rate	70.72%	70.68%	71.81%	72.95%	73.69%	74.15%	72.80%	73.76%

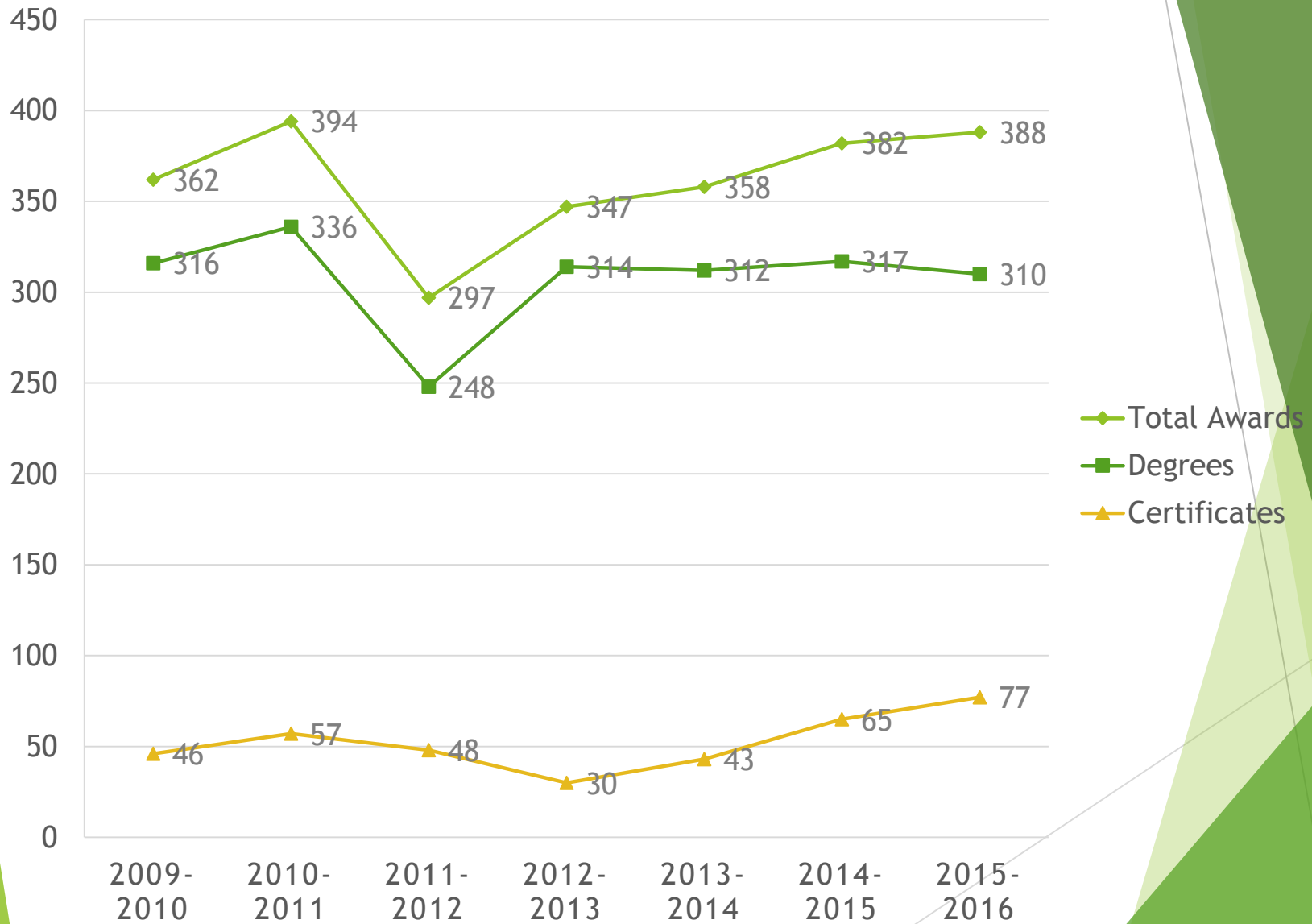
Retention and Success by Ethnicity 2016-2017

Ethnicity	Retention Rate	Success Rate
Black	88.37%	64.92%
Native American	81.42%	63.02%
Asian	86.98%	77.02%
Hispanic	86.99%	68.93%
Multi-Ethnicity	91.23%	68.79%
Pacific Islander	87.60%	78.65%
Unknown	84.91%	64.07%
White	87.46%	74.04%
TOTAL	88.19%	73.76%




2016-2017 Academic Year

R/E Group	%/#	Black	Native American	Asian	Hispanic	Other	Pacific Islander	Unknown	White	Total
Completed w/A, B, C or P (At least 3% below rate)	#	551	739	475	4,828	26	88	87	8,214	15,008
	%	67%	65%	78%	72%	67%	74%	70%	76%	74%
Completed w/D, F or NP (At least 3% above rate)	#	165	223	69	1,156	8	18	23	1,342	3,004
	%	21%	20%	12%	17%	21%	16%	19%	13%	14%
Completed w/W (withdrawn) (At least 3% above rate)	#	104	174	66	801	5	13	15	1,267	2,445
	%	13%	16%	11%	12%	13%	11%	12%	12%	12%
Total		820	1,136	610	6,785	39	119	125	10,823	20,457

Degrees Awarded



Student Achievement Standards 2017

Metric				2016-2017
	Institution Set Minimum Standard	Institution Set Standard	Institution Set Goal	
Student Course Completion Rate	73%	<u>75%</u>	77%	74%
Student Retention Percentage	88%	<u>90%</u>	92%	88%
Student Degree Completion	287	<u>313</u>	325	326
Student Transfer to Four year	155	<u>182</u>	200	208*
Student Certificate Completion	45	55	<u>62</u>	71

Successful Course Completion

2016-2017	Student Course Enrollment	Successful Course Completion	Rate of Completion	Percentage Point Gap
Asian	515	406	78.9%	+5.10
Black	792	536	67.7%	-6.10
Hispanic	6,631	4,760	71.8%	-2.00
Native American	968	628	64.9%	-8.90
Pacific Islander	86	67	77.1%	+3.30
Multi-Ethnicity	343	242	70.6%	-3.20
Unknown	120	77	64.2%	-9.60
White	10,589	8,068	76.2%	+2.40
All Students	20,044	14,784	73.8%	Comparison

Successful Course Retention

2016-2017	Student Course Enrollment	Successful Course Retention	Rate of Retention	Percentage Point Gap
Asian	515	457	88.8%	+.60
Black	792	695	87.8%	-.40
Hispanic	6,631	5,863	88.5%	+.30
Native American	968	811	83.8%	-4.40
Pacific Islander	86	75	87.2%	-1.00
Multi-Ethnicity	343	312	91.0%	+2.80
Unknown	120	106	88.4%	+.20
White	10,589	9,356	88.4%	+.20
All Students	20,044	17,675	88.2%	Comparison

Student Degree Completion

2016-2017	Number of Degrees Completed	% of Overall Degrees	Overall Student Population
Asian	9	2.8%	3.31%
Black	10	3.10%	2.42%
Hispanic	105	32.2%	33.12%
Native American	16	4.9%	4.32%
Pacific Islander	3	1.0%	0.41%
Multi-Ethnicity	N/A	N/A	2.01%
Unknown	11	3.4%	1.00%
White	187	57.4%	53.41%
All Students	326	Comparison	

Student Transfer to 4 Year

2016-2017	Number of Transfers	% of Overall Transfers	Overall Student Population
Asian	2	1.6%	3.31%
Black	1	.8%	2.42%
Hispanic	50	37.9%	33.12%
Native American	2	1.6%	4.32%
Pacific Islander	N/A	N/A	0.41%
Multi-Ethnicity	7	5.3%	2.01%
Unknown	12	9.1%	1.00%
White	58	44%	53.41%
All Students	132	Comparison	

Northern California Top Industry Clusters

Exhibit 1: Five-year Projections by Major Group in Northern Inland and Northern Coastal Region (2015–2020)

Employment By Major Group (Number of occupations in group in parentheses)	2015 Jobs	5-Yr Change	5-Yr % Change	5-Yr Replacements	Annual Job Openings	Weighted Median Wages
Office and Administrative Support (24)	28,037	819	2%	3,555	711	\$17.26
Healthcare Practitioners and Technical (19)	14,196	1,584	12%	3,249	650	\$30.74
Healthcare Support (12)	9,084	1,617	13%	2,806	561	\$14.55
Installation, Maintenance, and Repair (29)	13,101	465	4%	2,408	482	\$19.89
Sales and Related (10)	10,960	332	(1%)	1,823	365	\$18.35
Personal Care and Service Occupations (9)	7,664	(335)	2%	1,307	262	\$10.83
Protective Service (8)	6,942	197	3%	1,257	251	\$36.62
Education, Training, and Library (3)	6,188	258	5%	1,134	227	\$12.81
Construction and Extraction (12)	9,291	(522)	1%	1,000	200	\$21.06
Transportation and Material Moving (10)	6,952	50	4%	979	196	\$19.35
Production (15)	4,321	94	4%	783	157	\$21.76
Management (8)	6,099	(235)	(2%)	739	148	\$23.03
Life, Physical, and Social Science (6)	2,953	36	7%	651	130	\$15.46
Food Preparation Serving Related (2)	2,359	178	2%	532	106	\$13.99
Community and Social Services (2)	1,717	338	19%	531	106	\$13.66
Business and Financial Operations (12)	2,797	104	5%	521	104	\$24.79
Arts, Design, Entertainment, Sports, and Media (13)	2,016	121	6%	413	82	\$16.39
Computer and Mathematical (6)	1,908	175	10%	324	65	\$24.97
Architecture and Engineering (6)	1,031	37	4%	131	26	\$26.05
Legal (4)	620	4	(0%)	85	17	\$24.02
Building & Grounds Cleaning & Maintenance (1)	475	8	2%	61	12	\$17.43
Total, All Selected Occupations	138,710	5,325	5%	24,289	4,858	\$20.17

Office and Administrative Support

Exhibit A: Five-Year Projected Occupation Data for Office & Administrative Support Occupations

SOC	Occupation	2015 Jobs	5-Yr Change	5-Yr % Change	5-Yr Replacements	Annual Openings
43-4051	Customer Service Representatives	3,014	375	12%	776	155
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	5,550	212	4%	540	108
43-1011	First-Line Supervisors of Office and Administrative Support Workers	3,268	185	6%	449	90
43-3031	Bookkeeping, Accounting, and Auditing Clerks	4,523	(107)	(2%)	268	54
43-3071	Tellers	1,277	(132)	(10%)	235	47
43-3021	Billing and Posting Clerks	1,127	74	7%	200	40
43-6013	Medical Secretaries	1,647	96	6%	195	39
43-9041	Insurance Claims and Policy Processing Clerks	584	24	4%	113	23
43-6011	Executive Secretaries and Executive Administrative Assistants	1,512	(4)	(0%)	104	21
43-5032	Dispatchers, Except Police, Fire, and Ambulance	413	29	7%	86	17
43-3051	Payroll and Timekeeping Clerks	544	3	1%	85	17
43-5061	Production, Planning, and Expediting Clerks	272	29	11%	69	14
43-5031	Police, Fire, and Ambulance Dispatchers	446	(4)	(1%)	61	12
43-3011	Bill and Account Collectors	357	6	2%	56	11
43-4031	Court, Municipal, and License Clerks	900	23	3%	52	10
43-4061	Eligibility Interviewers, Government Programs	621	12	2%	49	10
43-9021	Data Entry Keyers	325	12	4%	38	8
43-6012	Legal Secretaries	465	(18)	(4%)	36	7
43-3061	Procurement Clerks	177	0	0%	35	7
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	268	14	5%	31	6
43-4131	Loan Interviewers and Clerks	210	6	3%	29	6
43-4141	New Accounts Clerks	152	(15)	(10%)	18	4
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	168	(9)	(5%)	16	3
43-5011	Cargo and Freight Agents	55	4	7%	14	3
	All Other Office and Administrative Support Occupations*	161	4	4%	Insf. Data	Insf. Data
Total		28,037	819	2%	3,555	711

Office and Administrative Support Education

Exhibit C: Education and Training Requirements for Office & Administrative Support Occupations

SOC	Office and Administrative Support Occupations	Typical Entry-Level Education (BLS)	Typical On-The-Job Training (BLS)	% of Current Workers with Associate Degree or Some College (CPS)
43-1011	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	None	41%
43-3011	Bill and Account Collectors	High school diploma or equivalent	Moderate-term on-the-job training	50%
43-3021	Billing and Posting Clerks	High school diploma or equivalent	Moderate-term on-the-job training	50%
43-3031	Bookkeeping, Accounting, and Auditing Clerks	Some college, no degree	Moderate-term on-the-job training	49%
43-3051	Payroll and Timekeeping Clerks	High school diploma or equivalent	Moderate-term on-the-job training	51%
43-3061	Procurement Clerks	High school diploma or equivalent	Moderate-term on-the-job training	45%
43-3071	Tellers	High school diploma or equivalent	Short-term on-the-job training	45%
43-4011	Brokerage Clerks	High school diploma or equivalent	Moderate-term on-the-job training	37%
43-4031	Court, Municipal, and License Clerks	High school diploma or equivalent	Moderate-term on-the-job training	48%
43-4041	Credit Authorizers, Checkers, and Clerks	High school diploma or equivalent	Moderate-term on-the-job training	42%
43-4051	Customer Service Representatives	High school diploma or equivalent	Short-term on-the-job training	44%
43-4061	Eligibility Interviewers, Government Programs	High school diploma or equivalent	Moderate-term on-the-job training	38%
43-4131	Loan Interviewers and Clerks	High school diploma or equivalent	Short-term on-the-job training	46%
43-4141	New Accounts Clerks	High school diploma or equivalent	Moderate-term on-the-job training	46%
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	Associate degree	None	47%
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	High school diploma or equivalent	Short-term on-the-job training	46%
43-5011	Cargo and Freight Agents	High school diploma or equivalent	Short-term on-the-job training	46%
43-5031	Police, Fire, and Ambulance Dispatchers	High school diploma or equivalent	Moderate-term on-the-job training	48%
43-5032	Dispatchers, Except Police, Fire, and Ambulance	High school diploma or equivalent	Moderate-term on-the-job training	48%

Annual Awards for Office and Administrative Support

Exhibit D: Average Annual Awards and Headcount for Office & Administrative Support Occupations

TOP Code	TOP Title	Community College Annual Average Headcount (2012-15)	Community College Annual Average Certificates or Other Credit Awards (2012-15)	Community College Annual Average Associate Degrees (2012-15)
050200	Accounting	4,245	112	157
050400	Banking and Finance	162		
050630	Management Development and Supervision	65		
051400	Office Technology/Office Computer Applications	2,584	81	40
051410	Legal Office Technology	71	8	3
051420	Medical Office Technology	785	49	26
051440	Office Management	7		
051800	Customer Service	129		
061450	Desktop Publishing	15		
070210	Software Applications	2,515	30	14
140200	Paralegal	0	0	1
300900	Travel Services and Tourism	0	0	1
Total		10,578	280	242

Healthcare practitioner and technical

Exhibit A: Five-Year Projected Occupation Data for Healthcare Practitioner & Technical Occupations

SOC	Occupation	2015 Jobs	5-Yr Change	5-Yr % Change	5-Yr Replacements	Annual Openings
29-1141	Registered Nurses	7,033	866	12%	1,781	356
29-2061	Licensed Practical and Licensed Vocational Nurses	1,573	169	11%	413	83
29-2041	Emergency Medical Technicians and Paramedics	474	82	17%	128	26
29-2052	Pharmacy Technicians	931	54	6%	113	23
29-2071	Medical Records and Health Information Technicians	561	44	8%	110	22
29-1126	Respiratory Therapists	418	45	11%	99	20
29-2034	Radiologic Technologists	489	33	7%	85	17
29-2021	Dental Hygienists	558	15	3%	78	16
29-2099	Health Technologists and Technicians, All Other	348	45	13%	65	13
29-2012	Medical and Clinical Laboratory Technicians	260	27	10%	62	12
29-2056	Veterinary Technologists and Technicians	259	46	18%	61	12
29-2011	Medical and Clinical Laboratory Technologists	215	25	12%	55	11
29-2081	Opticians, Dispensing	183	22	12%	50	10
29-2055	Surgical Technologists	280	32	11%	49	10
29-2032	Diagnostic Medical Sonographers	99	17	17%	27	5
29-2031	Cardiovascular Technologists and Technicians	70	15	21%	23	5
29-2051	Dietetic Technicians	112	12	11%	18	4
29-2053	Psychiatric Technicians	105	10	10%	16	3
29-9099	Healthcare Practitioners and Technical Workers, All Other	71	8	11%	16	3
	All Other Healthcare Practitioners and Technical Occupations*	156	17	12%	Insf. Data	Insf. Data
	Total	14,196	1,584	12%	3,249	650

*The 'All Other Healthcare Practitioners and Technical Occupations' data aggregate occupations in the major group that did not meet the minimum demand criteria.

Healthcare Practitioner and Technical Education

Exhibit C: Education and Training Requirements for Healthcare Practitioner & Technical

SOC	Healthcare Practitioners and Technical Occupations	Typical Entry-Level Education (BLS)	Typical On-The-Job Training (BLS)	% of Current Workers with Associate Degree or Some College (CPS)
29-1124	Radiation Therapists	Associate degree	None	43%
29-1126	Respiratory Therapists	Associate degree	None	70%
29-1141	Registered Nurses	Bachelor's degree	None	42%
29-2011	Medical and Clinical Laboratory Technologists	Bachelor's degree	None	36%
29-2012	Medical and Clinical Laboratory Technicians	Associate degree	None	36%
29-2021	Dental Hygienists	Associate degree	None	61%
29-2031	Cardiovascular Technologists and Technicians	Associate degree	None	66%
29-2032	Diagnostic Medical Sonographers	Associate degree	None	66%
29-2033	Nuclear Medicine Technologists	Associate degree	None	66%
29-2034	Radiologic Technologists	Associate degree	None	66%
29-2035	Magnetic Resonance Imaging Technologists	Associate degree	None	66%
29-2041	Emergency Medical Technicians and Paramedics	Postsecondary non-degree award	None	68%
29-2051	Dietetic Technicians	Associate degree	None	56%
29-2052	Pharmacy Technicians	High school diploma or equivalent	Moderate-term on-the-job training	56%
29-2053	Psychiatric Technicians	Postsecondary non-degree award	Short-term on-the-job training	56%
29-2054	Respiratory Therapy Technicians	Associate degree	None	56%
29-2055	Surgical Technologists	Postsecondary non-degree award	None	56%
29-2056	Veterinary Technologists and Technicians	Associate degree	None	56%

Annual Awards for Healthcare practitioner and Technical

Exhibit D: Average Annual Awards and Headcount for Healthcare Practitioner & Technical Occupations

TOP Code	TOP Title	Community College Annual Average Headcount (2012–15)	Community College Annual Average Certificates or Other Credit Awards (2012–15)	Community College Annual Average Associate Degrees (2012–15)	Total Private Edu Annual Avg Awards (2012–15)
010210	Veterinary Technician (Licensed)	4	0	2	
121000	Respiratory Care/Therapy	64	28	28	
121300	Cardiovascular Technician	16			
122310	Health Information Coding	0	3	0	
123000	Nursing	1			
123010	Registered Nursing	590	5	269	
123020	Licensed Vocational Nursing	304	92	39	33
124020	Dental Hygienist	33	0	11	
125000	Emergency Medical Services	1,280	0	14	
125100	Paramedic	204	149	16	
130600	Nutrition, Foods, and Culinary Arts	5,105	0	21	
130620	Dietetic Services and Management	29	5	0	
Total		7,632	282	401	33

Installation, Maintenance & Repair

Exhibit A: Five-Year Projected Occupation Data for Installation, Maintenance & Repair Occupations

SOC	Occupation	2015 Jobs	5-Yr Change	5-Yr % Change	5-Yr Replacements	Annual Openings
49-9071	Maintenance and Repair Workers, General	3,772	192	5%	712	142
49-3023	Automotive Service Technicians and Mechanics	2,214	(5)	(0%)	406	81
49-9041	Industrial Machinery Mechanics	590	65	11%	158	32
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	921	47	5%	145	29
49-9021	Hearing, Air Conditioning, and Refrigeration Mechanics and Installers	647	31	5%	106	21
49-9051	Electrical Power-Line Installers and Repairers	286	19	7%	95	19
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	526	35	7%	91	18
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	337	46	14%	76	15
49-3021	Automotive Body and Related Repairers	429	(16)	(4%)	62	12
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	407	0	0%	62	12
49-9099	Installation, Maintenance, and Repair Workers, All Other	520	5	1%	60	12
49-9052	Telecommunications Line Installers and Repairers	231	21	9%	55	11
49-3041	Farm Equipment Mechanics and Service Technicians	140	26	19%	47	9
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	171	22	13%	42	8
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	138	3	2%	38	8
49-2011	Computer, Automated Teller, and Office Machine Repairers	254	(5)	(2%)	36	7
49-9043	Maintenance Workers, Machinery	147	14	10%	29	6
49-2098	Security and Fire Alarm Systems Installers	88	8	9%	22	4
49-9044	Millwrights	141	(25)	(18%)	20	4
49-9081	Wind Turbine Service Technicians	41	13	32%	20	4
49-3011	Aircraft Mechanics and Service Technicians	122	(12)	(10%)	19	4
49-9031	Home Appliance Repairers	96	(1)	(1%)	19	4
49-9094	Locksmiths and Safe Repairers	65	(4)	(6%)	18	4
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	82	4	5%	14	3
49-9062	Medical Equipment Repairers	72	4	6%	13	3
49-3052	Motorcycle Mechanics	70	(1)	(1%)	12	2
49-3092	Recreational Vehicle Service Technicians	56	(2)	(4%)	12	2
49-9011	Mechanical Door Repairers	37	2	5%	11	2
49-3051	Motorboat Mechanics and Service Technicians	57	1	2%	10	2
	All Other Installation, Maintenance, and Repair Occupations*	446	(22)	(5%)	Insf. Data	Insf. Data
	Total	13,101	463	4%	2,408	482

*The 'All Other Installation, Maintenance, and Repair Occupations' data aggregate occupations in the major group that did not meet the minimum demand criteria.

Installation, Maintenance & Repair Education

Exhibit C: Education and Training Requirements for Installation, Maintenance & Repair Occupations

SOC	Installation, Maintenance, and Repair Occupations	Typical Entry-Level Education (BLS)	Typical On-The-Job Training (BLS)	% of Current Workers with Associate Degree or Some College (CPS)
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	None	43%
49-2011	Computer, Automated Teller, and Office Machine Repairers	Some college, no degree	Short-term on-the-job training	53%
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	Associate degree	Moderate-term on-the-job training	53%
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary non-degree award	Moderate-term on-the-job training	53%
49-2091	Avionics Technicians	Associate degree	None	71%
49-2092	Electric Motor, Power Tool, and Related Repairers	Postsecondary non-degree award	Long-term on-the-job training	42%
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary non-degree award	Long-term on-the-job training	57%
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	Postsecondary non-degree award	Long-term on-the-job training	57%
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	Postsecondary non-degree award	Long-term on-the-job training	57%
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	Postsecondary non-degree award	Short-term on-the-job training	39%
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	Postsecondary non-degree award	Short-term on-the-job training	47%
49-2098	Security and Fire Alarm Systems Installers	High school diploma or equivalent	Moderate-term on-the-job training	47%
49-3011	Aircraft Mechanics and Service Technicians	Postsecondary non-degree award	None	60%
49-3021	Automotive Body and Related Repairers	High school diploma or equivalent	Long-term on-the-job training	26%
49-3023	Automotive Service Technicians and Mechanics	Postsecondary non-degree award	Short-term on-the-job training	33%
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	High school diploma or equivalent	Long-term on-the-job training	35%
49-3041	Farm Equipment Mechanics and Service Technicians	High school diploma or equivalent	Long-term on-the-job training	37%

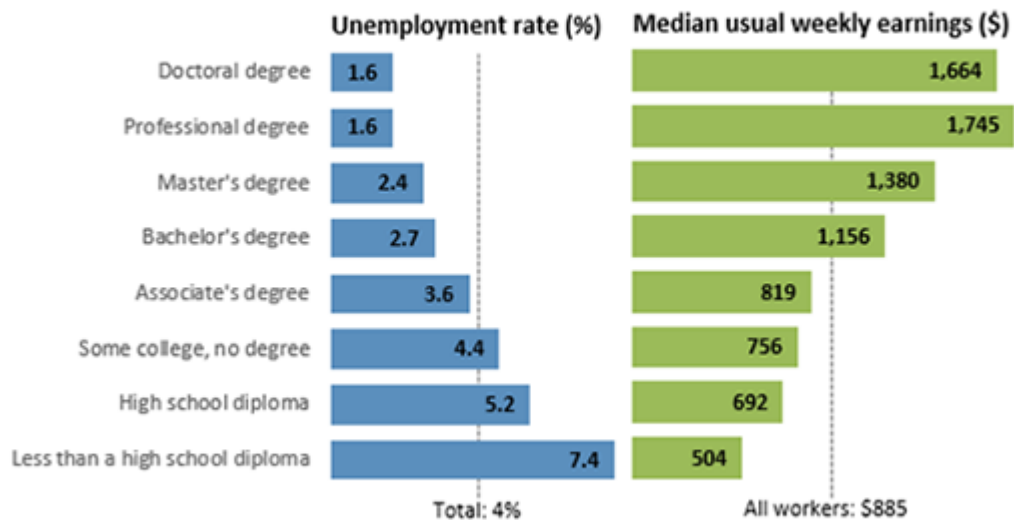
Annual Awards for Installation, Maintenance & Repair

Exhibit D: Average Annual Awards and Headcount for Installation, Maintenance & Repair Occupations

TOP Code	TOP Title	Community College Annual Average Headcount (2012–15)	Community College Annual Average Certificates or Other Credit Awards (2012–15)	Community College Annual Average Associate Degrees (2012–15)
011600	Agricultural Power Equipment Technology	243	20	1
093400	Electronics and Electric Technology	548	0	0
093410	Computer Electronics	149	4	0
093420	Industrial Electronics	219	60	30
094600	Environmental Control Technology	6		
094610	Energy Systems Technology	190	21	1
094700	Diesel Technology	169	2	6
094720	Heavy Equipment Maintenance	54		
094730	Heavy Equipment Operation	28	31	0
094800	Automotive Technology	979	62	21
095000	Aeronautical and Aviation Technology	5		
Total		2,590	200	60

Wages are best with AS degree or higher

Unemployment rates and earnings by educational attainment, 2016



Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.

Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Building Talent

Strategies to Address the Talent Shortage

Strategy	Tactic	Considerations/Questions
Build the Talent Supply	Alignment with local high schools, middle schools: presentations, internships, job shadowing	What is the brand of your industry, your organization within this group? How can you stay connected beyond the initial encounters?
Find New Access to a Talent Supply	Veteran focus	Identify the local military liaison organizations in your community. How can you help veterans map their skills on to your jobs? Could you do this "live" as well?
	Underrepresented population focus	Women, people of varied ethnic/racial backgrounds, disabled people may be great sources of talent. Again, try to identify organizations that connect with these groups.
	Local community or technical college partnership	These institutions can serve as a source of visibility and talent. In addition, might the school integrate apprenticeships with your organization into certain courses of study or use your senior employees as lecturers?
Determine Find vs Build aka Teachable Fit	Aptitude vs. Experience	Pull apart key jobs and determine which skills must walk in the door, which you can train and how you'll close the gap. Involve senior employees in the conversation.
Mitigate the Demand for New Talent	Knowledge transfer	Have active programs for logging and passing on key knowledge. This can engage existing talent and help bolster the knowledge of current but more junior employees.
	Onboarding programs	Onboarding isn't just the first day or week. Having a multi-month program to get new hires up to speed can help retain good talent and get them up the performance "S-curve" faster.
	Succession management	Sudden departures can cause a scramble to bring in identical talent. Identifying successors, and their knowledge/skill gaps, can bolster the skills and engagement of existing talent.
	Retention programs	Having a fully fleshed out retention program is important for your entire workforce, but particularly those individuals you don't want to lose. What are their key motivators?
	Flexible work models	Flexibility, in terms of hours, location (on-site vs remote/at home) and duties can be attractive to both senior and junior employees. In addition, temporary workers can help address spikes in demand, providing additional workforce flexibility.
	Training and development	Most employees want to see progression in their skills and most candidates want to work for an organization that actively assists in that progression. What are your core programs? Do your employees know about them? Do you highlight employees who have applied their learnings and expanded their careers with you?

Employment and Workforce Trends

2016-2017
Manpower Talent
Shortage Survey

The HARDEST SKILLS to find

For the fifth consecutive year, **Skilled Trades** positions are the hardest to fill globally; **IT** roles jumped seven places to second position



Skills Gap

WHY employers say it's HARD TO FILL positions

Lack of available applicants and hard skills are the top reasons employers can't fill positions



24%

Lack of available applicants/
no applicants



19%

Lack of hard skills
(technical competencies)



19%

Lack of experience



14%

Looking for more pay
than is offered



11%

Lack of soft skills
(workplace competencies)

“Today, nearly 11 million Americans are unemployed. Yet, at the same time, 4 million jobs sit unfilled. This is the “skills gap”—the gulf between the skills job seekers currently have and the skills employers need to fill their open positions.”

*“Closing the Skills Gap”, JAMIE DIMON and MARLENE SELTZER,
January 05, 2014*

Source: 2016-2017 Manpower Talent Shortage Survey