Summary Analysis

The Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to two middle-skill occupations: Video Game Designers (SOC 15-1199.11), and Multimedia Artists and Animators (27-1014). Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.[1] Although the occupations in this report typically require a bachelor's degree, they are considered middle-skill because approximately one-third of workers in the field have completed some college or an associate degree. Because Video Game Designers is considered an emerging occupation, the data presented for this occupation are based on the broader Computer Occupations, All Other (SOC 15-1199) occupation, which includes a variety of emerging occupations. Therefore, the demand data for Video Game Designers is overstated in this report.

This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data there appears to be a supply gap for middle-skill computer game programming occupations in the region. However, typical entry-level hourly wages for Multimedia Artists and Animators are significantly below the California Family Needs Calculator hourly wage (living wage) for one adult in Orange County. Additionally, entry-level wages for this occupation in Orange County are below the current statewide minimum wage.[2] Wage estimates are based on data collected over the last three years and are considered "point-in-time" estimates.[3] For this reason, wage data does not reflect recent changes in minimum wage laws. Furthermore, of the 35% of computer game programming job postings listing a minimum education requirement in Los Angeles/Orange County, 92% requested a bachelor's degree, **Therefore, the COE cautiously endorses this proposed program.** Reasons include:

Demand:

- Over the next five years, there is projected to be **2,715 jobs available annually** in the region due to new job growth and replacements, **which is more than the 427 awards conferred annually** by educational institutions in the region.

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[1] The COE classifies middle-skill jobs as the following:
- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

[2] For more information, see: https://www.dir.ca.gov/dlse/faq_minimumwage.htm
[3] For more information, see: https://www.labormarketinfo.edd.ca.gov/data/oes-wages-about-the-data.html

- However, the Computer Occupations, All Other (15-1199) SOC code includes a variety of emerging occupations, including web administrators, database architects and search marketing strategists. Since the SOC code does not solely represent video game designers, *the number of annual job openings is overstated.*
- **Typical entry-level hourly wages** for Computer Occupations, All Other are $27.23 in Los Angeles County and $26.30 in Orange County, which is **living wage for one adult in both counties.**[4]
  - However, typical entry-*level hourly wages for Multimedia Artists and Animators in Orange County are $11.61, which is significantly below that county's living wage and below the current stage minimum wage.* However, **wage data is based on data collected over the past three years and does not reflect recent changes in minimum wage laws.**
  - Both occupations have **median wages above the living wage estimates for both counties.**
- Over the past 12 months, there were **2,554 online job postings in the region related to these occupations.** The highest number of job postings were for animator, graphic designer, visual effects artist, game designer, and interaction designer
  - However, of the 35% of computer game programming job postings listing a minimum education requirement in Los Angeles/Orange County, **92%** (819) *requested a bachelor's degree.*
- The national-level educational attainment data indicates between **27.4% and 36.9% of workers in the field have completed some college or an associate degree as their highest level of education.**

Supply:

- There are **19 community colleges** in the region that have programs related to these computer game programming occupations, conferring an average of **254 awards annually** between 2016 and 2019.
- Between 2013 and 2016, there were an average of **173 awards conferred annually** in related training programs by non-community college institutions, all of which were generated by **7 colleges throughout** the region.

Occupational Demand

Exhibit 1, on the following page, shows the five-year occupational demand projections for these middle-skill computer game programming occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 5% through 2023. There will be more than 2,700 job openings per year through 2023 due to job growth and replacements. It is important to note that the Computer Occupations, All Other (15-1199) SOC code includes a variety of emerging occupations and not solely Video Game Designers. Therefore, the data in Exhibit 1 is overstated for video game designers.

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[4] Living wage data was pulled from California Family Needs Calculator on 3/26/2020. For more information, visit the California Family Needs Calculator website: https://insightcced.org/2018-family-needs-calculator/.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties[5]

Geography	2018 Jobs	2023 Jobs	2018-2023 Change	2018-2023 % Change	Annual Openings
Los Angeles	21,922	22,864	942	4%	2,060
Orange	7,358	7,772	414	6%	656
Total	**29,280**	**30,636**	**1,356**	**5%**	**2,715**

Wages—Typical entry-level hourly wages for Computer Occupations, All Other are $27.23 in Los Angeles County and $26.30 in Orange County, both of which are above each county's living wage ($15.04 in Los Angeles County and $17.36 in Orange County)[6]. Typical entry-level hourly wages for Multimedia Artist sand Animators are $22.20 in Los Angeles County, which is above that county's living wage, and $11.61 in Orange County, which is significantly below that county's living wage and the current state minimum wage. Though these typical entry-level hourly wages are lower than both the living wage for Orange County and minimum wage, it is important to note that wage data is based on data collected over the previous three years. This historical data is a "point-in-time" estimate and does not reflect recent changes in minimum wage laws.

Typical median hourly wages for these occupations are between $34.63 and $40.03 in Los Angeles County and between $25.30 and $38.63 in Orange County, which is above the living wage in both counties. Experienced workers throughout the region can expect to earn between $48.34 and $54.40. Regional average wages are below the average statewide wage of $47.50 for these occupations. Wage information, by county, is included in Appendix A.

Job Postings—There were 2,554 online job postings related to these computer game programming occupations listed in the past 12 months. The highest number of job postings were for animator, graphic designer, visual effects artist, game designer, and interaction designer. The top programming and software skills were: Adobe Photoshop, Maya, Adobe After Effects, Adobe Illustrator, and Adobe InDesign. The top three employers, by number of job postings, in the region were: Blizzard Entertainment, Sony Electronics, and Activision. Of the 2,554 online job postings, 35% list a minimum education requirement.

Educational Attainment—The Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level education for both occupations in this report. The national-level educational attainment data indicates between 27.8% and 35.2% of workers in the field have completed some college or an associate degree. Of the 35% of computer game programming job postings listing a minimum education requirement in Los Angeles/Orange County, 92% (819) requested a bachelor's degree, 6% (53) requested a high school diploma or vocational training, and 2% (17) requested an associate degree.

Supply
Community College Supply—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Digital Media (0614.00), Multimedia

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(0614.10), Electronic Game Design (0614.20), Animation (0614.40), and Computer Graphics and Digital Imagery (0614.60). Over the past three years, community colleges throughout the region conferred an annual average of 254 awards. Over the past 12 months, there were three other related program recommendation requests from regional community colleges under the 0614.20 TOP code. All three were related to electronic, computer, or video game design.

Exhibit 2: Regional community college awards (certificates and degrees), 2016-2019

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
0614.00	Digital Media	East LA	1	-	-	0
		LA Mission	-	-	1	0
		LA Trade	-	7	19	9
		Long Beach	-	1	-	0
		LA Subtotal	**1**	**8**	**20**	**10**
		Coastline	-	-	3	1
		Golden West	13	9	10	11
		Irvine	8	15	9	11
		OC Subtotal	**21**	**24**	**22**	**22**
		Subtotal/Average	**22**	**32**	**42**	**32**
0614.10	Multimedia	LA Mission	8	12	21	14
		Long Beach	1	1	-	1
		Pasadena	1	5	6	4
		Santa Monica	6	5	5	5
		LA Subtotal	**16**	**23**	**32**	**24**
		Cypress	1	1	-	1
		Orange Coast	3	-	1	1
		Santiago Canyon	3	10	9	7
		OC Subtotal	**7**	**11**	**10**	**9**
		Subtotal/Average	**23**	**34**	**42**	**33**
0614.20	Electronic Game Design	Golden West	1	1	3	2
		OC Subtotal	**1**	**1**	**3**	**2**
		Subtotal/Average	**1**	**1**	**3**	**2**
0614.40	Animation	Cerritos	4	3	7	5
		East LA	3	6	14	8
		El Camino	-	1	5	2
		Glendale	4	6	2	4
		LA Mission	4	4	8	5
		Mt San Antonio	19	53	67	46
		Pasadena	-	-	2	1
		Rio Hondo	11	11	11	11
		Santa Monica	12	17	9	13
		LA Subtotal	**57**	**101**	**125**	**94**

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
		Cypress	9	3	7	6
		Fullerton	-	1	-	0
		Irvine	-	1	1	1
		Santa Ana	5	2	15	7
		OC Subtotal	**14**	**7**	**23**	**15**
		Subtotal/Average	**71**	**108**	**148**	**109**
		Citrus	7	23	13	14
		East LA	-	-	16	5
		LA Subtotal	**7**	**23**	**29**	**20**
		Coastline	1	2	5	3
0614.60	Computer Graphics and Digital Imagery	Cypress	11	1	7	6
		Fullerton	-	1	2	1
		North Orange Adult	2	4	9	5
		Orange Coast	28	35	38	34
		Saddleback	8	7	4	6
		Santa Ana	7	3	-	3
		OC Subtotal	**57**	**53**	**65**	**58**
		Subtotal/Average	**64**	**76**	**94**	**78**
		Total/Average	**181**	**251**	**329**	**254**

Non-Community College Supply—It is important to consider the supply from four-year institutions in the region that provide training programs for interactive media arts. Exhibit 3 shows the annual and three-year average number of awards conferred by seven institutions in the related Classification of Instructional Programs (CIP) Codes: Digital Communication and Media/Multimedia (09.0702), Animation, Interactive Technology, Video Graphics and Special Effects (10.0304), Computer Software and Media Applications, Other (11.0899), and Game and Interactive Media Design (50.0411). Due to different data collection periods, the most recent three-year period of available data is from 2013 to 2016. Between 2013 and 2016, four-year colleges in the region conferred an average of 173 awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2013-2016

CIP Code	Program	College	2013-2014 Awards	2014-2015 Awards	2015-2016 Awards	3-Year Award Average
09.0702	Digital Communication and Media/Multimedia	Los Angeles ORT College-Los Angeles Campus	5	8	12	8

CIP Code	Program	College	2013-2014 Awards	2014-2015 Awards	2015-2016 Awards	3-Year Award Average
		Los Angeles ORT College-Van Nuys Campus	7	4	5	5
	Supply Subtotal/Average		**12**	**12**	**17**	**14**
10.0304	Animation, Interactive Technology, Video Graphics and Special Effects	Gnomon School of Visual Effects	28	17	29	25
		Laguna College of Art and Design	-	-	1	0
		Los Angeles Film School	49	43	19	37
		New York Film Academy	14	25	25	21
	Supply Subtotal/Average		**91**	**85**	**74**	**83**
11.0899	Computer Software and Media Applications, Other	Learnet Academy	-	59	45	35
	Supply Subtotal/Average		**-**	**59**	**45**	**35**
50.0411	Game and Interactive Media Design	Los Angeles Film School	37	42	12	30
		New York Film Academy	-	16	16	11
	Suppl Subtotal/Average		**37**	**58**	**28**	**41**
	Supply Total/Average		**140**	**214**	**164**	**173**

Appendix A: Occupational demand and wage data by county

Exhibit 4. Los Angeles County

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer Occupations, All Other (15-1199)	15,472	16,264	792	5%	1,316	$27.23	$40.03	$55.09
Multimedia Artists and Animators (27-1014)	6,450	6,600	150	2%	744	$22.20	$34.63	$48.87
Total	**21,922**	**22,864**	**942**	**4%**	**2,060**			

Exhibit 5. Orange County

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer Occupations, All Other (15-1199)	6,751	7,138	387	6%	582	$26.30	$38.63	$53.15
Multimedia Artists and Animators (27-1014)	608	635	27	4%	73	$11.61	$25.30	$40.29
Total	**7,358**	**7,772**	**414**	**6%**	**656**			

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer Occupations, All Other (15-1199)	22,222	23,402	1,180	5%	1,898	$26.94	$39.59	$54.50
Multimedia Artists and Animators (27-1014)	7,058	7,234	176	2%	817	$21.37	$33.92	$48.34
Total	**29,280**	**30,636**	**1,356**	**5%**	**2,715**			

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- Employment Development Department, Unemployment Insurance Dataset
- Living Insight Center for Community Economic Development
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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