



Public Works Instructional Program Review 2011-2012

Spring 2013

Prepared by

Name	Title
Jim Lancaster	Dean
Jim Woolum	Program Review Coordinator

Public Works Program Review Committee Members

Name	Title
Dr. Irene Malmgren	Vice President of Academic Affairs
Dr. Lan Hao	Director of Institutional Research
Dr. David Kary	Curriculum Chair
Michelle Plug	Articulation Officer
James Woolum	Program Review Coordinator
Lanette Granger	Library
Sarah Bosler	Library



PROGRAM REVIEW – Public Works

The final summary of the program review process for Public Works is attached to this page.

I affirm that this program has been reviewed according to the accepted District procedures for program review and that the final summary accurately reflects the consensus of the members of the review committee.

_____ Jim Lancaster, Dean of Curriculum, Career/Technical and Continuing Education	_____ date
_____ Michelle Plug, Articulation Officer	_____ date
_____ David Kary,, Chair of Curriculum Committee	_____ date
_____ Irene Malmgren, Vice President of Academic Affairs	_____ date
_____ Jim Woolum,, Academic Senate President	_____ date
_____ Geraldine M. Perri, Superintendent/President	_____ date

It will be the department’s responsibility to communicate review recommendations with additional offices and services.

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1. Executive Summary

A. Program History/Description

Public Works, a career technical program, provides training for entry-level employment or advancement in public works occupations. Job opportunities include public works maintenance worker, arborist, and landscape or park management worker. Upon completion of the courses in this discipline as well as the general education requirements, students may earn an associate degree in Public Works. Students may also earn certificates of achievement in Public Works I or Public Works II. A third certificate of achievement is offered in Public Works/Landscape Management. This program is offered in collaboration with Mt. San Antonio College with course requirements that must be taken at each college. Courses in Public Works are offered at Citrus College and horticulture and landscape courses are offered at Mt. San Antonio College.

The Advisory Council members include directors, supervisors, engineers, and inspectors from public work departments of local cities and the county of Los Angeles and a representative of West Coast Arborists.

Courses in public works are offered on campus in the evening, at off-campus employer sites in the late afternoon and evening, and online.

B. Strengths/Effective Practices

1. Strong program commitment from LA/OC Maintenance Superintendents Association (MSA).
2. Dean is co-chair of MSA education committee.
3. MSA partners with Citrus College to offer scholarships to attend Citrus College Public Works program.
4. Certificate completion is steadily increasing--10/11 had 13 awards, double from the previous year.

C. Weaknesses/Lessons Learned

1. Program suffers from not having full-time faculty leadership.
2. Dean of division responsible for curriculum changes, program review and other 10+1 items within the program.
3. It is extremely difficult to find a qualified faculty to teach the OSHA course.

D. Recommendations/Next Steps

1. Inactivate Certificate of Achievement in Landscape Management.
2. Hire one FT faculty.
3. Explore internships with city municipalities for students entering field of public works.
4. Revise certificates and degree as recommended by employers.

2. Faculty

Full-Time Faculty

None

Adjunct Faculty

Adawiya, Issa
Chapman, Fullmer
Latta, Rebecca
Swartz, Theodore

3. Program description

Public Works, a career technical program, provides training for entry-level employment or advancement in public works occupations. Job opportunities include public works maintenance worker, arborist, and landscape or park management worker. Upon completion of the courses in this discipline as well as the general education requirements, students may earn an associate degree in Public Works. Students may also earn certificates of achievement in Public Works I or Public Works II.

4. Program Goals and Objectives

The goals and objectives of the Public Works Program are:

- a) Provide coursework required for job advancement.
- b) Offer DE courses to provide coursework for those outside of the southern California area.
- c) Offer Certificates of Achievement leading to job placement and/or advancement

5. List and Review of Degrees, Certificates, and Awards

Courses

PUB 150 Public Works I
PUB 151 Street Construction and Maintenance James Lancaster
PUB 154 Soils - Trenching and Grading
PUB 155 Public Works Inspection
PUB 156 Concrete Structures and Inspection
PUB 157 Asphalt and Portland Cement
PUB 158 Municipal and Urban Tree Care
PUB 159 Urban Forest Management Planning
PUB 160 Public Administration
PUB 161 California Occupational Safety and Health
PUB 162 Traffic Control Standards, Practices, and Policies
PUB 164 Plan Interpretation and Cost Estimating
PUB 165 Environmental Management in Public Works
PUB 166 Supervision in Public Works

Public Works A.S. Degree

These course offerings prepare new personnel for public works occupations and provide upgrading within these occupations. Job opportunities exist in both the public and private sectors.

This degree requires meeting the Citrus College General Education and proficiency requirements combined with successful completion (grades of "C" and above) of the following major requirements:

Required Courses	Units
PUB150 Public Works I	3
PUB151 Street Construction and Maintenance	3
PUB155 Public Works Inspection	3
PUB157 Asphalt and Portland Cement	3
PUB160 Public Administration	3
PUB164 Plan Interpretation and Cost Estimating	3
PUB166 Supervision in Public Works	3

Total Units 21

A.S. Degree Level Student Learning Outcomes

Students completing the Public Works A.S. Degree will:

1. Explain how to effectively use resources to administer infrastructure maintenance.
2. Describe and explain the fundamentals of street maintenance.
3. Demonstrate knowledge of equipment and techniques used for street maintenance.
4. Explain preventative methods and materials, emphasizing the importance of the need for longevity, in street construction and maintenance.
5. Properly demonstrate a clear understanding of inspection records, duties, and job diary techniques.
6. Describe and explain the ability to read and interpret plans.
7. Demonstrate a clear understanding of codes and ordinances

Public Works I Certificate of Achievement

These course offerings prepare new personnel for public works occupations and provide upgrading within these occupations. Job opportunities exist in both the public and private sectors.

Required Courses

Course	Title	Units
PUB 150	Public Works I	3
PUB 151	Street Construction and Maintenance	3
PUB 155	Public Works Inspection	3
PUB 157	Asphalt and Portland Cement	3

Select two (2) of the following electives:

Course	Title	Units
PUB 154	Soils - Trenching and Grading	3
PUB 156	Concrete Structures and Inspection	3
PUB 158	Municipal and Urban Tree Care	3
PUB 161	California Occupational Safety and Health	3

PUB 162	Traffic Control Standards, Practices, and Policies	3
PUB 165	Environmental Management in Public Works	3

EMPLOYMENT OPPORTUNITY: *Public Works Employees*

Certificate of Achievement Student Learning Outcomes:

Students completing the PUBLIC WORKS I Certificate of Achievement will:

1. Describe and explain the fundamentals of street maintenance
2. Demonstrate knowledge of equipment and techniques used for street maintenance
3. Explain preventative methods and materials, emphasizing the importance of the need for longevity, in street construction and maintenance
4. Properly demonstrate a clear understanding of inspection records, duties, and job diary techniques
5. Describe and explain the ability to read and interpret plans and demonstrate a clear understanding of codes and ordinances
6. Explain how to effectively use resources to administer infrastructure maintenance

Public Works II Certificate of Achievement

This Certificate prepares those already working in the Public Works field for promotion to supervisor or manager. Job opportunities exist in both the public and private sectors.

Required Courses

Course	Title	Units
Students must complete the Public Works I Certificate of Achievement plus:		18
PUB 160	Public Administration	3
PUB 164	Plan Interpretation and Cost Estimating	3
PUB 166	Supervision in Public Works	3
CSIS 130	Microcomputer Applications I	4
MATH 150	Intermediate Algebra	5

Select one (1) of the following electives:

Course	Title	Units
BUS 172	Personnel Management	3
BUS 175	Introduction to Management	3
BUS 176	Management for the Office Professional	3
PUB 154	Soils - Trenching and Grading	3
PUB 156	Concrete Structures and Inspection	3
PUB 158	Municipal and Urban Tree Care	3
PUB 159	Urban Forest Management Planning	3
PUB 161	California Occupational Safety and Health	3

PUB 162	Traffic Control Standards, Practices, and Policies	3
PUB 165	Environmental Management in Public Works	3

Employment Opportunity: Public Works Crew Leader, Street Division Supervisor, Maintenance Supervisor, Field Operations Manager

Certificate of Achievement Student Learning Outcomes:

Students completing the PUBLIC WORKS II Certificate of Achievement will:

1. Demonstrate techniques of Public Works administration in planning, finance, and personnel
2. Demonstrate the ability to estimate time, material, labor and equipment needed for Public Works projects
3. Describe effective methods of personnel management including communication, orientation, training, motivation, decision making, performance evaluation, and disciplinary action
4. Demonstrate the ability to use technology to prepare electronic spreadsheets, database management systems, and multimedia presentations

	Award	CCCCO Approval Year	Awards by Year				Total
			2008	2009	2010	2011	
Public Works Level I	AS Degree	1968	2	1	1	4	8
	Certificate	1968	3	3	4	9	19
Public Works Level II	Certificate	1974	2	1	3	2	8
			7	5	8	15	35

Degree or Certificate Title	Date last reviewed by Curriculum	Date degree SLOs written	Date degree SLOs Assessed	Date last reviewed by Advisory Council
Public Works AS Degree			N/A	6/12
Public Works 1			N/A	6/12
Public Works 2			N/A	6/12
Landscape (joint with Mt. SAC)	Deactivated eff. Fall 2012			

All certificates are mapped and courses scheduled/offered to allow completion within 3 semesters.

Landscape certificate recommended to be deactivated due to zero demand

6. List of Industry-Based Standard Certificates and Licenses

None, However the LA/OC MSA chapter is currently exploring the idea of statewide certification for public works employees.

7. Advisory Committee or Council

Name	Position / Company
Ken Boyce	City of Carson/MSA
Bill Ornelas	City of Rosemead/MSA
Robert Swartz	City Engineer/LADPW
Gerard Batista	City of Duarte/MSA
Troy Wittenbrock	City of Duarte/MSA
Issa Idawya	LADPW

8. Program Student Learning Outcomes

The Public Works Program has adopted the Institutional General Education Competencies of Citrus College (as approved by Steering December 8, 2008). General education competencies serve as a common set of core curricular components identified and defined by faculty. Student learning outcomes are behaviors based on these competencies.

Any student transferring, completing a degree or certificate from Citrus College, must demonstrate effectively assessed awareness, understanding, knowledge, skills, and abilities in the selected competencies.

Students completing courses in the Public Works Program will have acquired the following competencies:

1) Communication (personal expression and information acquisition)

- (a) Describe and explain the fundamentals of street maintenance.
- (b) Describe and explain the ability to read and interpret plans.

2) Computation

3) Creative, Critical, and Analytical Thinking, and Information Competency

- (a) Properly demonstrate a clear understanding of inspection records, duties, and job diary techniques.
- (b) Demonstrate a clear understanding of codes and ordinances.

4) Community/Global Consciousness and Responsibility

5) Technology

Explain how to effectively use resources to administer infrastructure maintenance.

6) Discipline / (Subject Area Specific Content Material)

- (a) Demonstrate knowledge of equipment and techniques used for street maintenance.
- (b) Explain preventative methods and materials, emphasizing the importance of the need for longevity, in street construction and maintenance.

9. Curriculum Review and Student Learning Outcomes Assessment

Curriculum/ SLO Assessment Map: Public Works

CC 1: Communication	CC 4: Community/global consciousness and responsibility
CC 2: Computation	CC 5: Technology
CC 3: Creative, Critical, and analytical thinking, information competency	CC 6: Discipline/Subject Area Specific Content Material

	CC 1 (a) Explain fund of street maintenance	CC 1 (b) Ability to read and interpret plans	CC 3 (a) Demo understanding of records	CC 3 (b) Understand codes	CC- 5 Effective use of resources	CC 6 (a) Knowledge of equipment and techniques	CC 6 (b) Knowledge of preventative methods	Date of SLO Assessment semester / year or CA=(Ongoing, Continuing Assessment)
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PUB 150 –Public Works I (3 Units), Applicability-D,C Last Offered-S 13, Last Curriculum Date: S07 , Curriculum Revision Date: S13 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1	I							S12
SLO 2	I							S12
SLO 3				I				S12
SLO 4				I				S12
SLO 5				I				S12
SLO 6						I		S12
SLO 7						I		S12
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 151 –Street Construction and Maintenance (3 Units), Applicability-D,C Last Offered-F 12, Last Curriculum Date: S12, Curriculum Revision Date: S18 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1	I							S12
SLO 2			I	D				S12
SLO 3					I			S12
SLO 4					I			S12
SLO 5			I					S12
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 154 –Soils – Trenching and Grading(3 Units), Applicability-D,C Last Offered-S 10, Last Curriculum Date: S12, Curriculum Revision Date: S18 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1						I		F14
SLO 2						I		F14
SLO 3	I			I			I	F14
SLO Key: I= Introduced, D=Developed, M=Mastered								

	CC 1 (a) Explain fund of street maintenance	CC 1 (b) Ability to read and interpret plans	CC 3 (a) Demo understanding of records	CC 3 (b) Understand codes	CC- 5 Effective use of resources	CC 6 (a) Knowledge of equipment and techniques	CC 6 (b) Knowledge of preventative methods	Date of SLO Assessment semester / year or CA=(Ongoing, Continuing Assessment)
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PUB 155 –Public Works Inspection (3 Units), Applicability-D,C Last Offered-S 13, Last Curriculum Date: F08, Curriculum Revision Date: F14 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1			I					S12
SLO 2				I				S12
SLO 3		I	I	D				S12
SLO 4		I						S12
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 156 –Concrete Structures and Inspection (3 Units), Applicability-D,C Last Offered-S 13, Last Curriculum Date: S06, Curriculum Revision Date: S12 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1						I		S12
SLO 2						I		S12
SLO 3						I		S12
SLO 4	I							S12
SLO 5				I		I		S12
SLO 6			I		I			S12
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 157 –Asphalt and Portland Cement (3 Units), Applicability-D/C Last Offered-S 13, Last Curriculum Date:S06 , Curriculum Revision Date: S12 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1	I					I		S12
SLO 2	I					I		S12
SLO 3	I							S12
SLO 4	I			I				S12
SLO 5				I		I	I	S12
SLO 6						D		S12
SLO 7				D				S12
SLO Key: I= Introduced, D=Developed, M=Mastered								

	CC 1 (a) Explain fund of street maintenance	CC 1 (b) Ability to read and interpret plans	CC 3 (a) Demo understanding of records	CC 3 (b) Understand codes	CC- 5 Effective use of resources	CC 6 (a) Knowledge of equipment and techniques	CC 6 (b) Knowledge of preventative methods	Date of SLO Assessment semester / year or CA=(Ongoing, Continuing Assessment)
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PUB 158 –Municipal and Urban Tree Care (3 Units), Applicability-D,C Last Offered-F 12, Last Curriculum Date:F09 , Curriculum Revision Date: F15 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1						I	I	F 12
SLO 2					I			F 12
SLO 3					I	I	I	F 12
SLO 4						I		F 12
SLO 5							I	F 12
SLO 6					I			F 12
SLO 7					I	I		F 12
SLO 8				I				F 12
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 159 –Urban Forest Management Planning (3 Units), Applicability-D,C Last Offered-F 10, Last Curriculum Date:F09 , Curriculum Revision Date: F15 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1		I			I			When offered
SLO 2					I			When offered
SLO 3					I			When offered
SLO 4		I						When offered
SLO 5				I				When offered
SLO 6		I			I			When offered
SLO 7		D						When offered
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 160 –Public Administration (3 Units), Applicability-D,C Last Offered-S 13, Last Curriculum Date:S12 , Curriculum Revision Date: S18 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1				I				S 12
SLO 2					I			S 12
SLO 3		I			I			S 12
SLO Key: I= Introduced, D=Developed, M=Mastered								

	CC 1 (a) Explain fund of street maintenance	CC 1 (b) Ability to read and interpret plans	CC 3 (a) Demo understanding of records	CC 3 (b) Understand codes	CC- 5 Effective use of resources	CC 6 (a) Knowledge of equipment and techniques	CC 6 (b) Knowledge of preventative methods	Date of SLO Assessment semester / year or CA=(Ongoing, Continuing Assessment)
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PUB 161 –California Occupational Safety and Health (3 Units), Applicability-C Last Offered-S 12, Last Curriculum Date:S06 , Curriculum Revision Date: S12 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1				D				F 13
SLO 2				I				F 13
SLO 3				I				F 13
SLO 4				I				F 13
SLO 5				I				F 13
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 162 –Traffic Control Standards, Practices, and Policies (3 Units), Applicability-C Last Offered-F 11, Last Curriculum Date:S12 , Curriculum Revision Date: S18 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1				I				S 14
SLO 2	I			I				S 14
SLO 3				I				S 14
SLO 4				I				S 14
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 164 –Plan Interpretation and Cost Estimating (3 Units), Applicability-C Last Offered-F 12, Last Curriculum Date:S12 , Curriculum Revision Date: S18 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1		I						S 13
SLO 2		I		I	I			S 13
SLO 3				I	I			S 13
SLO 4	I							S 13
SLO 5	I							S 13
SLO 6				I	I			S 13
SLO Key: I= Introduced, D=Developed, M=Mastered								

	CC 1 (a) Explain fund of street maintenance	CC 1 (b) Ability to read and interpret plans	CC 3 (a) Demo understanding of records	CC 3 (b) Understand codes	CC- 5 Effective use of resources	CC 6 (a) Knowledge of equipment and techniques	CC 6 (b) Knowledge of preventative methods	Date of SLO Assessment semester / year or CA=(Ongoing, Continuing Assessment)
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PUB 165 –Environmental Management in Public Works (3 Units), Applicability-C Last Offered-S 12, Last Curriculum Date:S09 , Curriculum Revision Date: Currently under review Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1					I			S 12
SLO 2					D			S 12
SLO 3				I				S 12
SLO 4				I			I	S 12
SLO 5						I		S 12
SLO 6				D				S 12
SLO Key: I= Introduced, D=Developed, M=Mastered								

PUB 166 –Supervision in Public Works (3 Units), Applicability-C Last Offered-F 12, Last Curriculum Date:S06 , Curriculum Revision Date: S12 Course Applicability Key: T=Transfer, D= Degree, C= Certificate, S= Skill Award								
SLO 1			I					S 13
SLO 2	I							S 13
SLO 3		I						S 13
SLO 4				I				S 13
SLO 5						I		S 13
SLO 6			I					S 13
SLO 7			I					S 13
SLO 8		I						S 13
SLO Key: I= Introduced, D=Developed, M=Mastered								

10. Review of previous recommendations

Mission:

a. By headcount, there are approximately 100 Public Works students enrolled at Citrus College at any given time, most taking one class per semester. A portion of these students are working toward their Public Works Certificate. The Public Works Program Review 2005-2006 indicates 7 certificates were awarded. A certificate requires six classes which, for the typical Public Works student, would take six semesters to complete. It would therefore be expected that approximately 10 or more certificates should be awarded annually. It is recommended that staff increase their efforts in identifying eligible students to apply for their Public Works Certificate.

Response: Certificate completions are increasing. there were 13 completions in 10/11, a doubling from the previous year. An in-house CTE counselor has helped facilitate this process.

b. Though employees in the public works industry are overwhelmingly male, it is recommended that a concerted effort be put forth to attract female students into the program.

Response: Kim Holland hosted a "Women in the Workforce" event prior to her retirement. The event had a large public works component.

Need:

a. It is recommended that a promotional slick be developed for the Public Works program.

Response: incomplete

b. It is recommended that the new Outreach Coordinator be consulted regarding promotion of the Public Works program.

Response: incomplete

Quality:

a. Recognizing the lack of gender balance in this industry, it is recommended that an emphasis is placed on the recruitment of women.

Response: Kim Holland hosted a "Women in the Workforce" event prior to her retirement. The event had a large public works component.

b. All syllabi will be revised by the fall 2006 semester to reflect the new Student Learning Outcomes.

Response: All Syllabi contain SLOs

c. Syllabi should be consistent with regard to a statement of accessing service for students with disabilities.

Response: Complete

d. The new Wingspan system will be explored to determine if it can flag students who are eligible for certificates and to track those awarded.

Response: Degree audit software purchased in 2010, awaiting implementation

Feasibility:

NONE

Compliance:

NONE

11. Evaluation Criteria – Mission

Current status

Program is one of only three public works programs in the state.

Commendations

- a. Curriculum and program are very well aligned with the needs of the industry. modifications are made based upon advisory counsel recommendations

Recommendations

- a. Needs a full-time faculty member to provide ground level leadership and program oversight/ownership

12. Evaluation Criteria – Need

The program is one of only three public works programs in the state. Employment is fairly level, but consistent. Students who enroll in the class are generally incumbent workers in the field who are seeking career advancement from a crew worker to foreman or foreman to director. Some students are seeking to improve skill levels for their current position. There is no state licensing in this career field. A limited number of Certificates of Achievement are issued.

Current status

Program is one of only three public works programs in the state. There are no industry-based certifications in Public Works. Please see the EMSI Report (Attachment D) for more information.

Commendations

- a.

Recommendations

- a.

13. Evaluation Criteria – Quality

Current status

Curriculum and program are very well aligned with the needs of the industry. modifications are made based upon advisory counsel recommendations

Commendations

- a.

Recommendations

- a. Explore internships with city municipalities for students entering field of public works
- b. Revise certificates and degree as recommended by employers.

14. Evaluation Criteria – Feasibility

Current status

Courses in public works are offered on campus in the evening, at off-campus employer sites in the late afternoon and evening, and online.

No full-time faculty leadership

Commendations

- a.

Recommendations

- a. needs a full-time faculty member to provide ground level leadership and program oversight/ownership

15. Evaluation Criteria – Compliance**Current status**

Advisory council meets regularly

Program has an excellent partnership with MSA

Commendations

- a. For being staffed with 100% adjunct, the faculty completed all course SLO Assessments.

Recommendations

- a. Course Outlines of Record for PUB 150, 156, 157, 161, and 166 need to be refreshed to remain in compliance. PUB 159 is being reviewed for deactivation.

16. Recommendations

Rank	Description of recommendation (actions or behaviors to be completed)	Responsible person(s)	Target Date	Personnel	Facilities	Equip. / Software	Supplies
1	Innactivate Certificate of Achievement in Landscape Management.	Dean	12/12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Hire one FT faculty.	FNIC/BOT	6/13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Explore interships with city municipalites for students entering field of public works.	Dean/MSA	6/13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Revise certificates and degree as recommended by employers.	Dean	6/13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments

17. Budget Recommendations

Resources are needed in the following areas:

Certificated Personnel (FNIC)

Position	Discuss impact on goals / SLOs	Impact ◇	Priority ‡
FT Faculty	No faculty leadership, program is 100% adjunct	MNQ	2

Classified Personnel

Position	Discuss impact on goals / SLOs	Impact ◇	Priority ‡

Facilities

Facilities / repairs or modifications needed	Discuss impact on goals / SLOs	Bldg / Room	Impact ◇	Priority ‡

Computers / Software (Tecs)

Item	Discuss impact on goals / SLOs	Cost	Impact ◇	Priority ‡

Equipment

Item	Discuss impact on goals / SLOs	Cost	Impact ◇	Priority ‡

Supplies (Division)

Item	Discuss impact on goals / SLOs	Cost	Impact ◇	Priority ‡

Additional information:

◇ **Impact:**

M = Mission: Does program meet the District's mission and established core competencies? Does program reflect the District's diversity?

N = Need: How is program addressing needs based on labor market data, enrollment, articulation, advisory committee, regional agreements, etc.?

Q = Quality: Are lecture/lab unit values appropriate? Have the course outlines been reviewed / updated regularly? Are disciplines appropriate? Is faculty development adequate? Does program support State and District emphasis on critical thinking, problem solving and written expression? Does program meet stated objectives in the form of SLOs? Are course pre-requisites and co-requisites validated?

F = Feasibility: Are facilities, equipment, and library resources adequate? Are evening programs and services adequate? Are course offerings frequent enough for students to make adequate progress in both day and evening programs? Does the program have adequate communication with & support from Counseling?

C = Compliance: Do course requisites meet Federal, State & District requirements? Do the course outlines meet state, district & federal regulations for content? Do vocational programs have regular advisory meetings?

‡ **Priority: (Note: When discussing priority, consider the following and address in Column 2)**

A. Is this goal mandated by law, rule, or district policy?

B. Is this goal essential to program success?

C. Is this goal necessary to maintain / improve program student learning outcomes?

Attachment A: Key Performance Indicator data pages

PUB Program Review

	Key Performance Indicators	Fall04	Fall05	Fall06	Fall07	Fall08	Fall09
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Program Access							
1	Majors (total)						
2	New Majors						
3	Courses Offered	4.0	4.0	2.0	3.0	4.0	5.0
4	Sections Offered	4.0	4.0	2.0	5.0	5.0	5.0
5	Morning Secions						
6	Afternoon Sections				3.0	1.0	1.0
7	Evening Sections	3.0	3.0	1.0	1.0	3.0	3.0
8	Arranged Sections						
9	Weekend Sections						
10	Short Term Sections	0.0	0.0	0.0	0.0	0.0	0.0
11	Distance Ed Full-Term Sections	1.0	1.0	1.0	1.0	1.0	1.0
12	Distance Ed Short-Term Sections						
13	Enrollment	107	95	37	144	155	120
14	Weekly Student Contact hours (WSCH)	317.9	280.0	107.9	444.6	518.5	395.0
15	Full-Time Equivalent Students (FTES)	10.9	9.6	3.7	13.7	16.0	12.2
Program Resources							
16	Full-Time Equivalent Faculty (FTEF)	0.6	0.6	0.3	0.7	0.8	0.8
17	Credit Reimbursement Rate	\$2,922.30	\$3,259.71	\$3,476.34	\$3,668.28	\$3,834.46	\$3,834.46
Program Operation							
18	WSCH/FTEF	567.7	500.0	385.4	609.1	648.1	500.1
19	FTES/FTEF	19.5	17.1	13.2	18.8	20.0	15.4
20	Fill Rate at Census	57.8	49.5	38.0	58.9	75.4	50.7
Program Success							
21	Course Retention	92.5	90.5	97.3	100.0	99.4	95.0
22	Course Success	71.0	77.9	75.7	86.8	86.5	77.5

PUB Program Review

	Key Performance Indicators				Winter08	Winter09	Winter10
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Program Access							
1	Majors (total)						
2	New Majors						
3	Courses Offered						
4	Sections Offered						
5	Morning Secions						
6	Afternoon Sections						
7	Evening Sections						
8	Arranged Sections						
9	Weekend Sections						
10	Short Term Sections						
11	Distance Ed Full-Term Sections						
12	Distance Ed Short-Term Sections						
13	Enrollment						
14	Weekly Student Contact hours (WSCH)				0.0	0.0	0.0
15	Full-Time Equivalent Students (FTES)						
Program Resources							
16	Full-Time Equivalent Faculty (FTEF)						
17	Credit Reimbursement Rate				\$3,668.28	\$3,834.46	\$3,834.46
Program Operation							
18	WSCH/FTEF						
19	FTES/FTEF						
20	Fill Rate at Census						
Program Success							
21	Course Retention						
22	Course Success						

PUB Program Review

	Key Performance Indicators	Spring05	Spring06	Spring07	Spring08	Spring09	Spring10
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Program Access							
1	Majors (total)						
2	New Majors						
3	Courses Offered	4.0	4.0	3.0	5.0	5.0	4.0
4	Sections Offered	4.0	4.0	3.0	5.0	6.0	4.0
5	Morning Secions						
6	Afternoon Sections				2.0	1.0	1.0
7	Evening Sections	3.0	3.0	2.0	2.0	3.0	2.0
8	Arranged Sections						
9	Weekend Sections						
10	Short Term Sections	0.0	0.0	0.0	1.0	0.0	0.0
11	Distance Ed Full-Term Sections	1.0	1.0	1.0	1.0	2.0	1.0
12	Distance Ed Short-Term Sections				0.0		
13	Enrollment	106	90	63	162	174	144
14	Weekly Student Contact hours (WSCH)	309.2	262.5	183.8	530.2	562.9	478.0
15	Full-Time Equivalent Students (FTES)	10.6	9.0	6.3	16.4	17.4	14.8
Program Resources							
16	Full-Time Equivalent Faculty (FTEF)	0.6	0.6	0.4	0.8	0.9	0.8
17	Credit Reimbursement Rate	\$2,922.30	\$3,259.71	\$3,476.34	\$3,668.28	\$3,834.46	\$3,834.46
Program Operation							
18	WSCH/FTEF	552.1	468.8	437.5	679.7	605.3	597.5
19	FTES/FTEF	18.9	16.1	15.0	21.0	18.7	18.4
20	Fill Rate at Census	50.2	45.7	44.7	61.6	63.7	78.3
Program Success							
21	Course Retention	96.2	94.4	95.2	96.3	98.9	97.9
22	Course Success	93.4	86.7	77.8	84.0	86.8	79.2

PUB Program Review

	Key Performance Indicators	Sum 04	Sum 05	Sum 06	Sum 07	Sum 08	Sum 09
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Program Access							
1	Majors (total)						
2	New Majors						
3	Courses Offered			1.0	1.0	2.0	1.0
4	Sections Offered			1.0	1.0	2.0	1.0
5	Morning Secions						
6	Afternoon Sections			1.0		1.0	
7	Evening Sections						
8	Arranged Sections						
9	Weekend Sections						
10	Short Term Sections			0.0	0.0	0.0	0.0
11	DistanceEd Full-Term Sections			0.0		0.0	
12	DistanceEd Short-Term Sections				1.0	1.0	1.0
13	Enrollment				20	71	35
14	Weekly Student Contact hours (WSCH)	0.0	0.0	52.5	60.1	219.1	105.0
15	Full-Time Equivalent Students (FTES)			1.8	2.1	6.8	3.2
Program Resources							
16	Full-Time Equivalent Faculty (FTEF)			0.1	0.1	0.3	0.1
17	Credit Reimbursement Rate	\$2,922.30	\$3,259.71	\$3,476.34	\$3,668.28	\$3,834.46	\$3,834.46
Program Operation							
18	WSCH/FTEF			375.0	429.2	730.2	750.0
19	FTES/FTEF			12.9	14.7	22.5	23.1
20	Fill Rate at Census				66.7	85.6	73.3
Program Success							
21	Course Retention				100.0	100.0	94.3
22	Course Success				100.0	97.2	77.1

	04-05		05-06		06-07		07-08		08-09		09-10	
	Year1		Year2		Year3		Year4		Year5		Year6	
Gender												
Female	11	8.1%	11	9.2%	6	7.7%	4	1.8%	14	5.2%	36	17.2%
Male	124	91.9%	109	90.8%	72	92.3%	193	87.3%	247	91.8%	169	80.9%
Missing							24	10.9%	8	3.0%	4	1.9%
Total	135	100.0%	120	100.0%	78	100.0%	221	100.0%	269	100.0%	209	100.0%
Age												
19 or younger	8	5.9%	8	6.7%	1	1.3%	3	1.4%	3	1.1%	19	9.1%
20-24	25	18.5%	19	15.8%	12	15.4%	27	12.2%	29	10.8%	42	20.1%
25-29	17	12.6%	14	11.7%	10	12.8%	41	18.6%	51	19.0%	30	14.4%
30-34	22	16.3%	23	19.2%	13	16.7%	30	13.6%	38	14.1%	27	12.9%
35-39	16	11.9%	19	15.8%	15	19.2%	36	16.3%	56	20.8%	28	13.4%
40-49	33	24.4%	29	24.2%	22	28.2%	63	28.5%	71	26.4%	43	20.6%
50 and above	14	10.4%	8	6.7%	5	6.4%	21	9.5%	21	7.8%	20	9.6%
Total	135	100.0%	120	100.0%	78	100.0%	221	100.0%	269	100.0%	209	100.0%
Ethnicity												
Asian	9	6.7%	8	6.7%	3	3.8%	2	0.9%	8	3.0%	3	1.4%
Black or African American	13	9.6%	7	5.8%	4	5.1%	39	17.6%	28	10.4%	27	12.9%
Hispanic/Latino	54	40.0%	50	41.7%	30	38.5%	78	35.3%	128	47.6%	83	39.7%
American Indian or Alaska Native	4	3.0%	1	0.8%	1	1.3%	3	1.4%	2	0.7%		
Native Hawaiian or Other Pacific Islander							1	0.5%	1	0.4%		
White	47	34.8%	40	33.3%	38	48.7%	41	18.6%	52	19.3%	32	15.3%
Two or More Races											1	0.5%
Unknown/Non-Respondent	8	5.9%	14	11.7%	2	2.6%	57	25.8%	50	18.6%	63	30.1%
Total	135	100.0%	120	100.0%	78	100.0%	221	100.0%	269	100.0%	209	100.0%
Educational Goal												
Degree & Transfer	11	8.1%	23	19.2%	9	11.5%	5	2.3%	13	4.8%	37	17.7%
Transfer	7	5.2%	3	2.5%	5	6.4%	1	0.5%	2	0.7%	8	3.8%
AA/AS	11	8.1%	9	7.5%	3	3.8%	23	10.4%	47	17.5%	31	14.8%
License	14	10.4%	5	4.2%		0.0%	9	4.1%	8	3.0%	4	1.9%
Certificate	28	20.7%	27	22.5%	15	19.2%	51	23.1%	44	16.4%	25	12.0%
Job Skills	51	37.8%	40	33.3%	35	44.9%	85	38.5%	97	36.1%	59	28.2%
Basic Skills							10	4.5%	29	10.8%	15	7.2%
Personal											1	0.5%
Undecided							5	2.3%	20	7.4%	20	9.6%
Not Reported	13	9.6%	13	10.8%	11	14.1%	32	14.5%	9	3.3%	9	4.3%
Total	135	100.0%	120	100.0%	78	100.0%	221	100.0%	269	100.0%	209	100.0%

	Key Performance Indicators	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
		Year1	Year2	Year3	Year4	Year5	Year6
Program Resources							
23	Revenue: FTES*Reimbursement Rate	\$62,202.39	\$60,304.64	\$34,763.40	\$117,605.06	\$152,343.10	\$114,842.08
24	Total District Adopted Program Budget	NO DATA	23,592	19,802	35,050	52,089	43,947
25	Support Personnel (wage without benefit, 2200 and 2400 in budget)	n/a	n/a	n/a	n/a	0	N/A
26	Supplies (4300 in budget)	0	0	0	NO DATA	104	0
27	Cost	17,507	24,683	15,702	NO DATA	51,914	
28	Total FTES for the year	21.3	18.5	10	32.06	39.73	29.95
29	Cost per FTES	821.92	1,334.22	1,570.20		1,306.67	
Degrees and Certificates							
30	Degree: Public Works				2	1	2
31	Certificates: Public Works	10	20	10	10	8	10
32	Skill Awards						
33	Licenses (reported by department)						
Career Technical Education Programs							
34	VTEA Grant						
35	Industry Contributions to Program Resources						
36	Available Jobs						
37	Attach one copy of the three most recent College Core Indicator Information forms for each of the appropriate TOP codes						
38	Please include "Student Satisfaction" and "Employer Satisfaction" in the program review write-up.						
39	Labor market data						

Attachment B:

Maintenance Superintendents Association (MSA) Notes – Oct. 9, 2012

How would you like to see the Public Works certificate change? What does it need to include? Is it missing anything in its current form?

Provides a good foundation for what is needed on the job, especially as a supplement to work being performed by those already employed in the field of public works (Gerard)

ADD work experience/field work component – especially for those not working in public works while enrolled

- Supplement to classroom instruction

ADD irrigation fundamentals

ADD full service maintenance component – tress, gardening, irrigation, street maintenance, etc.

- Many cities do 'cross over' work and do not contract out other service – the employee may need to be versed in all of these areas so they are capable of performing the work needed at any given time

ADD signal technology

ADD job shadowing

- Spend a day in the field at a city office
- Match the skills needed with the city/yard that specializes in the same services
- Not necessarily do any work that day, but instead experience what is needed to perform in that job, what occurs in the city on any given day, etc.
- Many were willing to participate in this part of the program

ADD internships

- It is an EASY process – many work through their HR departments to 'hire' the intern
- Example – the intern shadowed an employee for 8 weeks – helped provide career direction for those still undecided about specialty
- Many internships have led to employment following internship

**Attachment C:
Advisory Committee Meeting Minutes**

CITRUS COMMUNITY COLLEGE
Public Works
Tuesday, June 12, 2012
1:00pm – 3:00pm

Attendees: Ken Boyce, City of Carson; Bill Ornelas, City of Rosemead; Marti DeYoung, Grant Specialist, Citrus College; Jim Lancaster, Dean of Curriculum, CTCE, Robert Swartz, Senior Civil Engineer, LA County DWP; Gerard C. Batista, City of Duarte; Troy Wittenbrock, Field Services Manager, City of Duarte

Agenda	Discussion	Recommendations & Action Items
Welcome and Introductions	Jim Lancaster introduced himself as the Dean of Curriculum, Career, Technical, and Continuing Education. The Advisory Council was introduced. A sign-in sheet and hand-out materials was circulated.	
Updates and News	It is mandatory that an advisory meeting for all Community College CTE Programs be conducted at least once a year. We look to the industry for input on current and future needs, which assists us to stay on track as a college in providing students quality programs that leads to employment: high-wage, high- skill or high-demand careers. Also Advisory contacts assist in keeping us informed of job availability within the industry. Importantly, applying for additional grant funding (Perkins, VTEA) for these programs requires having an Advisory Committee. The college goal is to follow the industry and meet the needs of the community.	
Program Certificate and Degree Outcomes/Review	The Public Works Certificate requires updating and revamping. There has not been a demand for it and is on historical status until it is recommended to bring it back. Some students do not understand the process in filing for a certificate and steps will be made to inform the procedure. Jim asks the faculty to assist in updating.	
Program Review	New adjunct must be hired in order to teach courses that pertain to the certificate. We must offer a minimum of 5ive classes per semester to keep on track with the certificate program. We will be a school of 10,000 students. Many adjuncts have been released due to fewer classes being offered. There is a hiring freeze for classified staff. We have had to eliminate participation in some outside events since there is a lack of staff.	New adjunct must be hired to fill courses required for the certificate. Faculty will assist in the search.

<p style="text-align: center;">Data Certificates/Degrees Awarded</p> <p style="text-align: center;">Program Needs and Recommendations</p>	<p>successful.</p> <p>There are some aspects of the Public Works that might not be conducive to interns due to safety factors. Interns must not displace a worker. This is not an apprenticeship.</p> <p>Jim distributed the most current data information on degrees and certificates awarded. 2010-11 = 13 degree/certificates awarded This was doubled from the previous year due to having a dedicated counselor to the CTE Programs.</p> <p>We have proven it to be effective and Marti and Jim are working diligently to maintain having a CTE instructor.</p> <p>All Public Works courses will be taught in one classroom that can be concentrated to the program. We can put supplies and industry posters, information on the walls that pertain strictly to the industry.</p> <p>Since Public Works does not have a full-time faculty, Jim is requesting needs and recommendations from each of the faculty and he will then write their program review. This is used as a planning tool.</p> <p>As MSA develops a state-wide certification our curriculum should be standardized and aligned towards those requirements. i.e., model with water program. If MSA requires CEU courses, they must be developed into the curriculum.</p> <p>A student outcome would be that the student will be qualified to take the certification test.</p> <p>To better serve the working student we will explore developing one or two unit courses in addition to the traditional three unit course.</p> <p>Group would like data to support which courses should be developed that teaches to the weakest subject areas, i.e., math, writing, communication, computer.</p> <p>The state of California is concerned that many classes do not require enough basic skills. We are working on an implementation plan that addresses the requirement without creating all basic skills classes. A suggestion would be to create a pre-requisite of an introductory class that incorporates the basic skills that applies to the subject.</p> <p>Enrollment is higher with those classes conducted on-campus; therefore most of the off-site locations will be eliminated.</p> <p>There is still a tremendous need for additional Public Work</p>	<p>Jim and Marti De Young will research grant dollars for a pilot internship program. It will be discussed further. Course must be written.</p> <p>Jim will write the Program Review with all recommended needs.</p> <p>The curriculum will be standardized and aligned towards the MSA state-wide certification.</p> <p>Create a pre-requisite introductory course with the option of waiving the requirement for those students that have more experience.</p> <p>A continual need for new Public Work</p>
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<p>Meeting Adjourned</p> <p>Submitted by: Lois Bottari</p>	<p>instructors.</p> <p>Per Issa Adawiya there is a significantly large population of Public Works students, and he would be willing to teach a certificate suite of courses as an off-site location.</p> <p>A suggestion is to advertise with the cities that a Public Works certificate is a preferred qualification to the position.</p> <p>Marti and Jim explained that it has been difficult to create excitement and interest with the high schools for the Public Works Program.</p> <p>The Advisory agree that a dedicated career counselor who is well-versed in the industry and not just course work is a critical component to assisting students in understanding the various jobs and management careers within the Public Works field.</p> <p>The Advisory will continue throughout the year to submit ideas and needs for the program to Jim Lancaster.</p> <p>The next meeting will be announced.</p>	<p>instructors.</p> <p>Jim will meet with the CTE Dean from Santa Clarita to partnership with</p> <p>Advertise with the cities that a Public Works certificate be recognized as a preferred qualification.</p> <p>A Career Counselor is critical to assisting students in understanding the industry and program.</p> <p>Advisory will continually submit recommendations and needs throughout the year to Jim Lancaster.</p>
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Attachment D:

Economic Modeling Specialists International (EMSI) Report

1000 West Foothill Boulevard

Glendora, California 91741-1899

Occupation Report

LA/OC/SB



Report Info

Dataset Version	2013.1
Timeframe	2011 - 2017
Region Name	LA/OC/SB
Counties	Los Angeles, CA (6037)
	Orange, CA (6059)
	San Bernardino, CA (6071)

Occupation Group

Civil Engineering Technicians (17-

3022) Tree Trimmers and Pruners

(37-3013)

Cement Masons and Concrete Finishers (47-

2051) Highway Maintenance Workers (47-

4051)

Traffic Technicians (53-6041)



Job Distribution



Overview

Annual Openings Estimate (2012)	374
Related Completions (2011)	386
Current Job Postings	N/A for Multiple Codes

Gender

Male	97% 
Female	3% 

Age

14-18	1% 
19-24	7% 
25-44	52% 
45-64	37% 
65+	3% 

12,829 Jobs (2012) National Location Quotient: 0.61	7.0% % Change (2011-2017) Nation: 7.3%	\$21.55/hr Median Earnings Nation: \$17.42/hr
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LA/OC/SB | Growth for Target Occupations

12,609

2011 Jobs

13,494

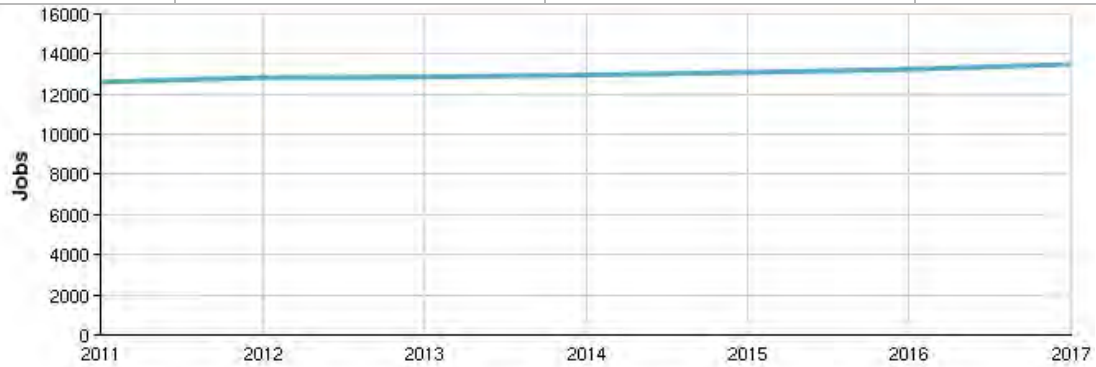
2017 Jobs

885

Change (2011-2017)

7.0%

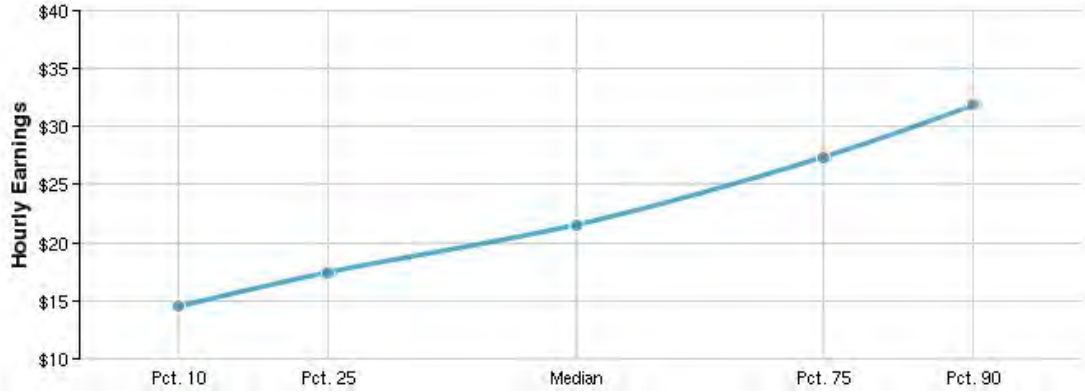
% Change (2011-2017)



Occupation	2011 Jobs	2017 Jobs	Change	% Change
Civil Engineering Technicians (17-3022)	2,465	2,670	205	8%
Tree Trimmers and Pruners (37-3013)	3,175	3,295	120	4%
Cement Masons and Concrete Finishers (47-2051)	5,364	5,653	289	5%
Highway Maintenance Workers (47-4051)	1,431	1,694	263	18%
Traffic Technicians (53-6041)	173	181	8	5%

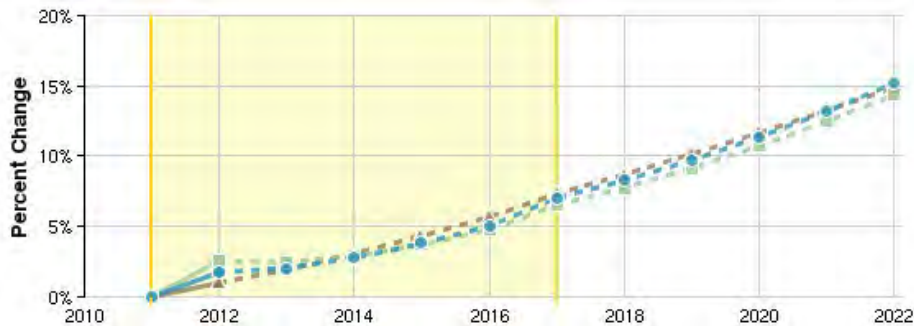
LA/OC/SB | Percentile Earnings

\$14.52/hr 10th Percentile Earnings	\$21.55/hr Median Earnings	\$31.84/hr 90th Percentile Earnings
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Occupation	10th Percentile Earnings	Median Earnings	90th Percentile Earnings
Civil Engineering Technicians (17-3022)	\$21.18	\$30.61	\$40.43
Tree Trimmers and Pruners (37-3013)	\$11.59	\$14.26	\$19.36
Cement Masons and Concrete Finishers (47-2051)	\$12.47	\$21.15	\$34.21
Highway Maintenance Workers (47-4051)	\$17.47	\$23.68	\$34.93
Traffic Technicians (53-6041)	\$12.67	\$19.32	\$34.93

Regional Trends



Region	2011 Jobs	2017 Jobs	% Change
A LA/OC/SB	12,609	13,494	7.0%
B State	38,036	40,526	6.5%
C Nation	451,539	484,647	7.3%

Educational Programs

6 Programs (2011)	386 Completions (2011)				
Program	2007	2008	2009	2010	2011
Building Construction Technology (46.0415)	0	0	0	147	187
Construction Engineering Technology/Technician (15.1001)	57	76	81	127	112
Engineering Technology, General (15.0000)	33	43	32	28	44
Construction Trades, General (46.0000)	102	73	17	50	43
Construction/Heavy Equipment/Earthmoving Equipment Operation (49.0202)	0	0	0	0	0

Inverse Staffing Patterns

Industry	Occupation Group Jobs in Industry (2012)	% of Occupation Group in Industry (2012)	% of Total Jobs in Industry (2012)
Landscaping Services (561730)	2,827	22.0%	5.1%
Poured Concrete Foundation and Structure Contractors (238110)	2,265	17.7%	27.1%
Local Government, Excluding Education and Hospitals (903999)	1,878	14.6%	0.7%
Engineering Services (541330)	1,277	10.0%	2.7%
All Other Specialty Trade Contractors (238990)	641	5.0%	2.6%

Data Sources and Calculations

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department

Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Staffing Patterns Data

The staffing patterns data in this report is compiled from several sources using a specialized process. Sources include Occupational Employment Statistics, and the National Occupation Matrix. EMSI uses ratios from the national matrix and inputs regional jobs by industry, converting these to jobs by occupation. The ratios derived from this are adjusted to equal actual regional data, resulting in a unique regional staffing pattern.

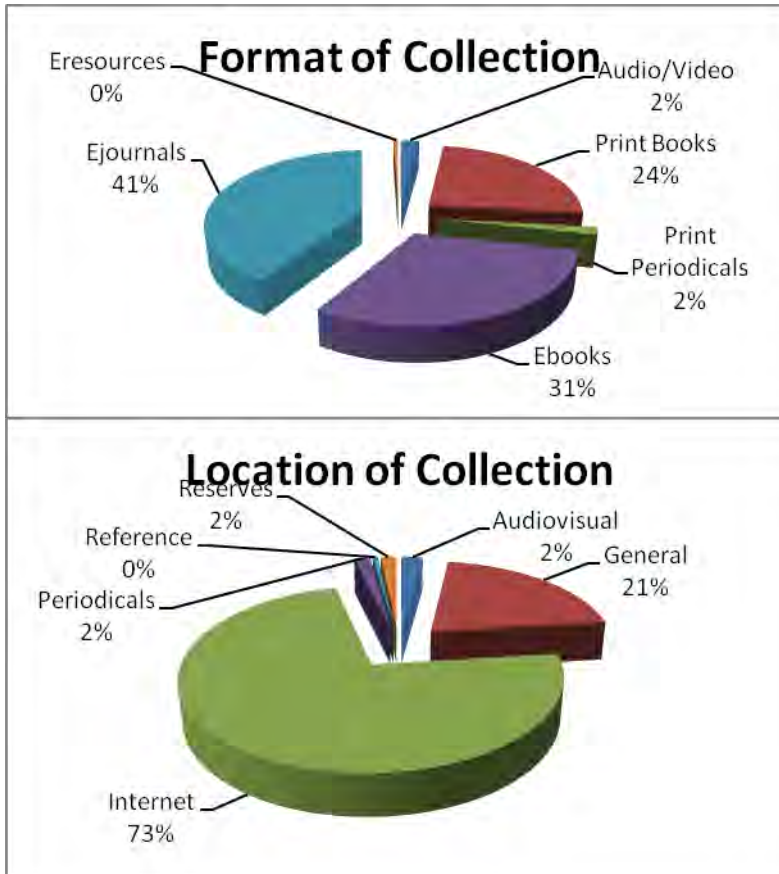
Attachment E: Library Report
CITRUS COLLEGE LIBRARY
SPRING 2013
LIBRARY REPORT: PUBLIC WORKS

Activity:

Library Instruction Sessions (during prior year)	-0-
Circulation of materials in Dewey subject area 620-629.99 % of total circulation	.40%

Resources:

Dewey arranged materials 621.319-625.88 582.16 631.4-635	112
Ejournals – listed at end of report	73





Databases:

<p>Academic Search Premier (1975-) Multi-disciplinary database for academic publications including peer-reviewed journals, & images.</p>	<p>GreenFILE Indexes with some Open Access full-text information on scholarly, government & general-interest titles on the human impact to the environment.</p>
<p>MasterFILE Premier (1975-) Magazines, reference books, biographies, primary documents, & images.</p>	<p>Military & Government news for all branches of the military & government.</p>
<p>eBook Collection e-book titles. Searchable, printable by page.</p>	<p>Vocational & Career (1985-) Trade and industry-related journals.</p>
<p>Business Source Premier (1965-; some 1922-) accounting, economics, finance, international bus., management, & industry profiles. Daily updates.</p>	

ASHRAE journal (0001-2491) [Title details from Ulrichsweb.com™](#)

from 01/01/2004 to present in [Academic Search Premier](#) and [Vocational & Career Collection](#)

ASHRAE transactions (0001-2505) [Title details from Ulrichsweb.com™](#)

from 01/01/2004 to present in [Academic Search Premier](#) and [Vocational & Career Collection](#)

Building design (0007-3423) [Title details from Ulrichsweb.com™](#)

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