Prepared by: Fernando Fernandez

What are the strengths of your area?:

The strengths of the Ornamental Horticulture Program include:

1. Course outlines and curriculum that are current. The course outlines for the OH Program were updated during the 2013-2014 academic year. Curriculum was also updated to support all courses in the program. Most courses modified during the 2013-2014 academic year have been ratified through the curriculum committee process.

2. New facilities designed to train students based on industry standards and needs. The new Ornamental Horticulture facilities at the Tulare College Center were designed with input from members of the horticulture industry. The facilities allow for the practical hands-on training of students in the program based on current industry standards and needs.

3. Implementation of new technology as part of the curriculum. Computer technology and software have been incorporated in the curriculum of many of the courses in the program. In addition, students are now receiving training in the new technology being used for greenhouse climate control and nursery irrigation at the Horticulture Unit.

4. Strong ties to the industry represented by advisory committee members. Members of the Ornamental Horticulture Advisory Committee represent the local industry. Their expertise and knowledge of the current industry trends and needs allows faculty in the program to make changes to curriculum and lab activities to maintain courses in the program current and relevant to the industry.

What improvements are needed?:

Improvements needed in the Ornamental Horticulture Program include:

1. Complete a cost analysis for the general operation and maintenance of the instructional horticulture facilities including the costs to support the practical laboratory activities for all classes in the program. This cost analysis is needed to create an accurate working budget for the program.

2. Hire a technician to work with faculty to manage, operate and maintain the instructional horticulture facilities. Minimal support is currently available to manage, operate and maintain the instructional horticulture facilities. There is no available support to prepare for practical laboratory activities. Most of the necessary work is being done by faculty, students enrolled in the Volunteer Work Experience Program and paid student workers. The hiring of a laboratory technician is needed for the proper training of students to successfully complete program Student Learner Outcomes and meet the demands of industry.

3. Complete the acquisition of instructional tools and equipment to serve the areas of landscape management, nursery management, general horticulture and floral technology. A list of needed tools and equipment for the Horticulture Program was developed prior to the relocation of the Agriculture division to the Tulare College Center. Not all of the equipment and tools on the list have been purchased. The remainder of equipment and tools on the list need to be purchased to support the laboratory activities and meet the student learner outcomes in multiple courses.

4. Acquire storage for power and hand tools utilized for instructional. The Landscape Management and the Nursery Management buildings do not contain locked areas or locking cabinets that can be utilized to store small power and hand tools. These locking cabinets are needed for the safe storage of instructional and non-instructional power and hand tools in the program.

5. Complete modification of irrigation systems for nursery growing areas, greenhouses and shade house. The irrigation systems originally installed in the greenhouses, shade house and nursery growing areas do not work properly. During the past year, some of the systems have been modified to make necessary corrections. Modified systems are now working as intended in the original design. The irrigation systems are needed to train students in the operation and maintenance of irrigation technology, and to maintain the health of the plant material used for instructional purposes.

6. Add a drainage system inside the greenhouses and shade house. The greenhouses and shade house are a key component in the practical training of students. Those buildings were constructed without drainage. The lack of drainage causes the walkways to become slippery and unsafe. Drainage is needed in those building to eliminate the safety hazard.

7. Increase student awareness about career opportunities in the Ornamental Horticulture field. Develop a brochure highlighting the Ornamental Horticulture
Program that can be utilized for student outreach and advisement. This brochure is needed to facilitate the student outreach efforts at local high school programs, local community events and at the annual College Night event. It may also be used in the advisement of students by faculty in the program or members of the Counseling division.

8. Enclosure of the Ornamental Horticulture laboratory building. This building was constructed with open sides and without cooling and heating. The open sides of the building make the building very cold in the winter months, wet during a storm, and hot in the warm weather. It is difficult to plan and conduct laboratory activities in a building that has minimal protection from the elements. Full enclosure of the building is needed to provide a safe learning environment to conduct laboratory activities.

9. Maintain the specialized software programs and hardware used for instruction current and available to students by providing access to software in the classroom, the OH Lab and the library. Software programs need to be upgraded as new versions of the software are released and available. An instructional Laptop needs to be updated to support the software. This laptop is used in the OH Lab where no other computer is available. The printer for nursery plant labels is needed to replace an older printer for which technical support services and software are no longer available.

Describe any external opportunities or challenges:

Some of the external opportunities for the Ornamental Horticulture Program include:

1. Increased industry need for well trained program completers. As the demand for a trained labor force continues to increase, the hiring of a laboratory technician will allow for the proper training of students to successfully complete program outcomes.

2. Potential for increased student outreach and recruitment from local area high schools. The local area high schools continue to maintain strong Agricultural Education Programs. This presents an opportunity to recruit students from those local programs. The support of the Agriculture division faculty for sectional and regional FFA activities hosted at the Tulare College Center is due in part to increase student outreach and recruitment.

External challenges of the Horticulture Program include:

1. The ability to offer classes that will meet the demands of the Agriculture Plant Science Transfer Model Curriculum, which includes courses in Horticulture. As the state approves the Transfer Model Curriculum in Agriculture Plant Science, additional faculty and resources will be needed to offers the courses that will meet the demands of the program.

2. The ability to provide courses that qualify for the state of California Pest Control Adviser's examination. Additional resources will be needed to maintain courses that qualify for the State Examination for Pest Control Advisers and Qualified Pesticide Applicators relevant.

Overall Outcome Achievement: The average Student Success data from three consecutive academic years is as follows: 2010-2011- 66.8%, 2011-2012- 76.7%, and 2012-2013- 79.8%. The data shows a continuous improvement in student success over the indicated three academic years. Individual program outcomes will be evaluated starting at the end of the current academic year.

Changes based on outcome achievement: Some changes have been made based on the results of outcome assessment. Examples of this are (1) the incorporation of the use of computers and internet resources as instructional tools in the following courses: OH 117 (OH217 New number), OH 2, OH 3, OH 105, OH 120 (OH 220 New number) and OH 122 (OH 222 New number); (2) the alignment of OH 2, OH 3, OH 105 to the Transfer Model Curriculum (TMC) and Course Identification Number System (C-ID); and (3) restructuring and updating of the OH 1 course outline to meet the General Edication Requirement for graduation under Area B- Natural Science.

Outcome cycle evaluation: Many of the SLO's for most courses have been assessed. A PLO assessment cycle has been developed.

Action: Cost analysis

Conduct a cost analysis for the general operation and maintenance of the Horticulture Instructional Facilities including costs to support the practical laboratory activities for all classes in the program.

Start Date: 07/01/2014
Completion Date: 06/30/2015
Status: New Action

Identify related course/program outcomes: OH 111- Given cut floral materials, students will be able to design and construct floral designs that are representative of round, western line, vase, and wear and carry principles to a level that is industry standard.
OH 7- Given a set of guidelines, students will be able to design a landscape for a selected residential site with a score of 70% on a rubric based on industry standards.

OH 204- Given a set of plants and an area in the nursery, students will be able to prepare a sales demonstration for the public. Students will be evaluated on their ability to select and prepare plant material for sale including plant selection, labeling, pricing, and presentation. Minimum of 90% of the plants selected by students must be of market quality and size based on industry standards.

OH 204- Given a set of 20 plants, students will be able to weed, fertilize and water all plants. Student will perform the skills to industry standards and satisfaction of the instructor.

OH 105- Given all materials, students will be able to make 25 hardwood cuttings to industry standards.

PLO: Identify and classify plant material, describe its usage, and cultural practices.

PLO- Prepare appropriate growth media for propagation techniques and growing container plant material.

PLO- Communicate with the public and colleagues using a variety of digital applications.

Person(s) Responsible (Name and Position): Program faculty, CTE Dean, Division Chair

Rationale (With supporting data): It has been difficult to develop an accurate budget for the operation and maintenance of the Horticulture facilities. Conducting a cost analysis for the general operation and maintenance of the horticulture facilities will help in the development of an accurate working budget for the instructional unit that will include laboratory activities required by all courses in the program to meet Student Learner Outcomes.

Priority: High
Safety Issue: Yes
External Mandate: No

Add Resource Request for Action

<table>
<thead>
<tr>
<th>Resource Description</th>
<th>Why is this resource required for this action?</th>
<th>Notes (optional)</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>The resources needed for this action is data from all receipts and expenses in the OH Program for one fiscal year (July 1, 2014 to June 30, 2015.)</td>
<td>The data is needed to be able to create an accurate working budget for the program in fiscal years moving forward.</td>
<td>The resource for this action is listed as Technology due to lack of choices to classify it.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Resource Type: Technology

Action: Student practical training support

Provide safe, practical laboratory activities for the proper training of students to successfully complete program student learner outcomes and meet the demands of industry.

Implementation Timeline: 2015 - 2016

Start Date: 07/01/2015
Completion Date: 05/31/2016
Status: New Action

Identify related PLO- Identify and classify plant material, describe its usage, and cultural practices.

course/program outcomes:

PLO- Prepare appropriate growth media for propagation techniques and growing container plant material.

PLO- Exhibit safe and appropriate practices for the use of equipment and tools in the landscape.

PLO- Exhibit appropriate installation and cultural care practices for an aesthetically pleasing landscape.

PLO- Communicate with the public and colleagues utilizing a variety of digital applications.
Person(s) Responsible (Name and Position):
Program Faculty, Division Chair, CTE Dean

Rationale (With supporting data):
Laboratory activities are a component of all courses in the Horticulture Program. Practical lab activities prepare students to enter the labor force with the skills needed by industry. They also prepare students for the state exams required to become Landscape Contractors, Pest Control Advisors or Pesticide Applicators.

Priority: High
Safety Issue: Yes
External Mandate: No

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<tr>
<th>Add Resource Request for Action</th>
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</thead>
<tbody>
<tr>
<td><strong>Resource Description</strong></td>
</tr>
<tr>
<td>Ornamental Horticulture Lab Technician</td>
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</tbody>
</table>

**Resource Type:**
Classified- New/Replacement

**Action: Tools and equipment**
Provide students with proper training in the operation and safety of tools and equipment based on current industry standards in landscape maintenance and management, nursery production and management, and the floral design industry.

**Implementation Timeline:**
2014 - 2015

**Start Date:**
08/11/2014

**Completion Date:**
06/30/2015

**Status:**
New Action

**Identify related course/program outcomes:**

- OH 109- Given an area of turfgrass, students will be able to edge and mow the turf to the specifications called by each grass type as discussed in class.
- OH 1- Given all soil components, students will be able to measure components and mix 3 types of organic soil mixes used to propagate or grow plants in containers to industry standards.
- OH 210- Given a fertilizer spreader and a bag of fertilizer, students will be able to calibrate the spreader and apply the fertilizer to a given turf area to the instructor's satisfaction, based on the spreader's standard recommendations, and the fertilizer label recommendations.
- OH 111- Given cut floral materials, students will be able to design and construct floral designs that are representative of round, western line, vase, and wear and carry principles to a level that is industry standard.
- PLO- Exhibit safe and appropriate practices in the use of equipment and tools in the landscape.

Person(s) Responsible (Name and Position):
Program Faculty, CTE Dean, Division Chair

Rationale (With supporting data):
The new Ornamental Horticulture facilities at the Tulare College Center were designed with input from members of the horticulture industry. The facilities allow for the practical hands-on training of students in the program based on current industry standards and needs. Equipment and tools are needed to provide practical training to students.

Priority: High
Safety Issue: Yes
External Mandate: No
Add Resource Request for Action

<table>
<thead>
<tr>
<th>Resource Description</th>
<th>Why is this resource required for this action?</th>
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<tbody>
<tr>
<td>1. Soil mixer</td>
<td>Equipment needed to meet course and program standards requiring practical training in the safety and operation of tools and equipment.</td>
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<td>Yes</td>
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<td>2. Comercial zero-turn mower</td>
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<td>3. Comercial Honda push mower</td>
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<td>4. Long handle tools; set of six each round point shovel, square point shovel, garden rake, Leaf rake, garden cultivator, garden hoe, etc.)</td>
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<td>5. Landscape pruning chain saw</td>
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<tr>
<td>6. Fertilizer Spreaders (2)</td>
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<tr>
<td>7. Pruning ladders</td>
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<tr>
<td>8. Pruning shears</td>
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</table>

**Resource Type:**
Instructional equipment

**Action: Storage for power and hand tools**

Organize and protect instructional and non-instructional power tools and hand tools to be readily available for practical lab instruction.

**Implementation Timeline:** 2014 - 2015

  - **Start Date:** 07/01/2014
  - **Completion Date:** 06/30/2015
  - **Status:** New Action

**Identify related course/program outcomes:**
PLO- Exhibit safe and appropriate practices in the use of equipment and tools in the landscape.

**Person(s) Responsible (Name and Position):**
Program Faculty, CTE Dean, Division Chair

**Rationale (With supporting data):**
The Landscape Management and Nursery Management buildings do not contain locked areas or locking cabinets that can be utilized to store small power and hand tools. These locking cabinets are needed for the safe storage of instructional and non-instructional power and hand tools in the program. Equipment and tools must be maintained in optimal condition to provide safe training to students.

**Priority:** High

**Safety Issue:** Yes

**External Mandate:** No

Add Resource Request for Action

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<tbody>
<tr>
<td>Locking storage cabinets and locking tool boxes.</td>
<td>Safety is a primary training component of the program. These locking cabinets and tool boxes are needed for the safe storage of instructional and non-instructional power and hand tools to maintain them in safe condition and readily available for student instruction.</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Resource Type:**
Instructional equipment

**Action: Irrigation systems**

Provide students with the training in operating and maintaining automatic irrigation systems in a nursery setting, and provide automatic watering systems for the operation and management of nursery plant material used for practical laboratory activities.

**Implementation Timeline:** 2014 - 2015

  - **Start Date:** 07/01/2014
Completion Date: 06/30/2015
Status: New Action

**Identify related course/program outcomes:**
OH 204- Given a set of plants and an area in the nursery, students will be able to prepare a sales demonstration for the public. Students will be evaluated on their ability to select and prepare plant material for sale including plant selection, labeling, pricing, and presentation. Minimum of 90% of the plants selected by students must be of market quality and size based on industry standards.

OH 204- Given a set of 20 plants, students will be able to weed, fertilize and water all plants. Student will perform the skills to industry standards and satisfaction of the instructor.

OH 204- Given a set of ten one-gallon container plants, students will be able to trim or prune, label, and space the plants in the nursery to industry standards.

OH 2- Given 50 plants or plant samples, students will be able to identify those plants with 70% accuracy.

OH 105- Given a set of stock plants and all materials, students will be able to harvest propagation material and make 25 semi-hardwood cuttings to industry standards.

**Person(s) Responsible (Name and Position):**
Horticulture faculty, CTE Dean

**Rationale (With supporting data):**
The irrigation systems originally installed in the greenhouses, shade house and nursery growing areas do not work properly. During the past year, some of the systems have been modified to make necessary corrections. Modified systems are now working as intended in the original design. The irrigation systems are needed to properly train students in the operation and maintenance of irrigation technology, and to maintain the health of the plant material used for instructional purposes.

**Priority:** High

**Safety Issue:** Yes

**External Mandate:** No

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<tr>
<td>Irrigation systems for nursery growing areas, greenhouses and shade house that are part of the instructional OH Unit.</td>
<td>The irrigation systems are needed to train students in the operation and maintenance of irrigation technology, and to maintain the health of the plant material used for instructional laboratory activities.</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Resource Type:** Facilities

**Action: Drainage systems**
Provide safe facilities for the implementation of the practical lab activities of the program.

**Implementation Timeline:** 2014 - 2015

**Start Date:** 07/01/2014

**Completion Date:** 06/30/2015

**Status:** New Action

**Identify related course/program outcomes:**
OH 105- Given a set of stock plants and all materials, students will be able to harvest propagation material and make 25 semi-hardwood cuttings to industry standards.

OH 1- Given all materials, students will be able to demonstrate 3 vegetative and seed propagation techniques utilized to propagate common ornamental plants to industry standards.

OH 105- Given stock plants and all materials, students will be able to make 25 herbaceous cuttings with 90% success rate.

OH 1- Given a set of guidelines, students will be able to conduct research experiment and write a report and present their findings to the class with a minimum score of 70% on a rubric.
OH 204- Given a set of plants and an area in the nursery, students will be able to prepare a sales demonstration for the public. Students will be evaluated on their ability to select and prepare plant material for sale including plant selection, labeling, pricing, and presentation. Minimum of 90% of the plants selected by students must be of market quality and size based on industry standards.

Person(s) Responsible (Name and Position): Horticulture faculty, CTE Dean

Rationale (With supporting data): The greenhouses and shade house are a key component in the practical training of students. Those buildings were constructed without drainage. The lack of drainage causes the walkways to become slippery and unsafe. Drainage is needed in those buildings to eliminate the safety hazard.

Priority: High
Safety Issue: Yes
External Mandate: No

Add Resource Request for Action

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</thead>
<tbody>
<tr>
<td>Addition of drainage system to Greenhouses and Shadehouse.</td>
<td>The greenhouses and shade house are a key component in the practical training of students. Those buildings were constructed without drainage. The lack of drainage causes the walkways to become slippery and unsafe. Drainage is needed in those buildings to eliminate the safety hazard.</td>
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<td>Yes</td>
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</table>

Action: Promotional Program Brochure
Increase student awareness about career opportunities in the Ornamental Horticulture industry. Develop a promotional brochure for the Ornamental Horticulture Program that can be used for student outreach and advisement.

Start Date: 01/12/2015
Completion Date: 06/30/2015
Status: New Action

Identify related course/program outcomes: This action relates to all courses, certificates, and degrees within the Ornamental Horticulture Program in regards to student outreach, recruitment and advisement.

Person(s) Responsible (Name and Position): Program Faculty, CTE Dean

Rationale (With supporting data): A brochure or pamphlet highlighting the Ornamental Horticulture Program is needed to facilitate the student outreach and recruitment efforts at local high school programs, and local community events. It may also be used in the advisement of students by faculty in the program or members of the counseling division.

Priority: High
Safety Issue: No
External Mandate: No

Add Resource Request for Action

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<tbody>
<tr>
<td>Brochure highlighting the Ornamental Horticulture Program that can be used for student outreach, recruitment and advisement.</td>
<td>This brochure is needed to facilitate the student outreach and recruitment efforts at local high school programs and local community events. It will also improve the advisement of students by faculty in the program or members of the Counseling division.</td>
<td></td>
<td>Yes</td>
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</table>
**Action: Enclosure of Ornamental Horticulture laboratory building**

Provide a safe learning environment to conduct laboratory activities to support student learning and achievement.

**Implementation Timeline:** 2014 - 2015

- **Start Date:** 01/12/2015
- **Completion Date:** 08/03/2015
- **Status:** New Action

**Identify related course/program outcomes:**

- PLO- Given a set of 30 plants, students will be able to classify those plants into classification categories of trees, shrubs, ground covers, flowering perennials, and annuals with a minimum of 70% accuracy.
- OH 2- Given a list of plants to be studied during the semester, a plant press and a set of guidelines, students will be able to collect, identify, dry, mount and label 25 plant specimens to make a collection with 90% accuracy on common and botanical names.
- OH1- Given a set of guidelines, students will be able to conduct research experiment and write a report and present their findings to the class with a minimum score of 70% on a rubric.
- OH 204- Given a set of ten one-gallon container plants, students will be able to trim or prune, label, and space the plants in the nursery to industry standards.

**Person(s) Responsible (Name and Position):**

Program Faculty, CTE Dean, TCC Provost

**Rationale (With supporting data):**

This building was constructed with open sides and without cooling and heating. The open sides of the building make the building very cold in the winter months, wet during a storm, and hot in the warm weather. It is difficult to plan and conduct laboratory activities in a building that has minimal protection from the elements. Full enclosure of the building is needed to provide a safe learning environment to conduct laboratory activities.

**Priority:** High

**Safety Issue:** Yes

**External Mandate:** No

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<tr>
<td>Resource Description</td>
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<tr>
<td>The OH Lab is utilized as the instructional area for practical Lab activities in the program.</td>
</tr>
</tbody>
</table>

**Action: Specialized computer software and hardware**

Provide students with practical training in the use of specialized software and hardware that is used in the horticulture industry.

**Implementation Timeline:** 2015 - 2016

- **Start Date:** 08/11/2014
- **Completion Date:** 06/30/2015
- **Status:** New Action

**Identify related course/program outcomes:**

- PLO- Communicate with the public and colleagues utilizing a variety of digital applications.
- OH 3- Given the guidelines for a written report and a presentation score card, students will be able to write a report on a plant species and make a 10 minute presentation to summarize their findings to the class with a minimum of 70% score on the presentation score card and report rubric.
- OH 204- Given a set of plants and an area in the nursery, students will be able to prepare a sales demonstration for the public. Students will be evaluated on their ability to select and prepare plant material for sale including plant selection, labeling, pricing, and presentation. Minimum of 90% of the plants selected by students...
must be of market quality and size based on industry standards.

OH 111- Given plant materials, students will be able to identify 20 commonly sold potted plants within the floral industry and demonstrate the appropriate care of the plants to 90% accuracy.

OH 3- Given 50 plants or plant samples, students will be able to identify those plants with 70% accuracy.

Person(s) Responsible (Name and Position):
Program Faculty, Computer Services, CTE Dean

Rationale (With supporting data): Maintain the specialized software programs used for instruction current and available to students in the program in the classroom and in the library. Software programs need to be upgraded as new versions of the software are released and available.

Priority: High
Safety Issue: No
External Mandate: No

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<tbody>
<tr>
<td><strong>Resource Description</strong></td>
</tr>
<tr>
<td>Software updates for Horticopia Professional V, PRO Landscape, and Taggit Pro. A Laptop Computer and Printer for Nursery Plant Labels. A point of sale cash register system for the nursery.</td>
</tr>
</tbody>
</table>

Resource Type: Technology