THE ECONOMIC IMPACT OF GREATER PHILADELPHIA GARDENS

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REPORT SUBMITTED TO:
Greater Philadelphia Gardens

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EXECUTIVE SUMMARY

Greater Philadelphia Gardens ("GPG") is a consortium of more than 30 public gardens, arboreta, historical landscapes and supporting organizations located within 30 miles of Philadelphia. While gardens are traditionally discussed in terms of their aesthetic and cultural value, amenities like the GPG member institutions enrich the regional economy in a number of ways:

- Their collective economic footprint as employers and purchasers of goods and services is sizable, yielding significant spillover economic activity;
- Their presence and reputation also attracts and increases visitor spending from outside the region, which accrues across a number of sectors and then circulates through the local economy;
- Their role as initiators of capital investment supports a significant volume of local economy activity, and enhances the regional tourism and recreation infrastructure;
- The real estate market considers their presence as an amenity, thereby increasing property values;

In sum, **GPG member gardens are cultural attractions that make the Philadelphia region a more attractive place to live and visit, thereby generating economic value in a variety of ways**. The dual purpose of this report is to understand and articulate the character of visitation to member gardens, and to calculate the magnitude of impact from GPG's economic footprint within the Philadelphia region.

Economic Impact

The total annual economic impact of the operations and visitation to GPG member institutions within the 11-county Philadelphia region is estimated at $256 million on an annual basis. This economy activity supports 1,520 jobs, with total earnings of $79 million (see Table ES.1)

TABLE ES.1 – ANNUAL ECONOMIC IMPACT OF MEMBER GARDENS WITHIN GREATER PHILADELPHIA

Economic Impact	Operations	Visitor Spending	Annual Total
Direct Output ($M)	$108	$30	$138
Indirect & Induced Output ($M)	$92	$26	$118
Total Output ($M)	**$200**	**$56**	**$256**
Total Employment (FTE)	**1,080**	**440**	**1,520**
Total Earnings ($M)	**$61**	**$18**	**$79**

Above and beyond these annual impacts, the total economic impact of GPG member's capital investments over the last three years within the 11-county Philadelphia region is estimated at $232 million. This economy activity supports more than 1,400 jobs, with total earnings of $96 million (see Table ES.2).

TABLE ES.2 – ONE-TIME ECONOMIC IMPACT OF MEMBER GARDENS' CAPITAL INVESTMENTS WITHIN GREATER PHILADELPHIA, PAST THREE YEARS

Economic Impact	Greater Philadelphia
Direct Output ($M)	$116
Indirect & Induced Output ($M)	$116
Total Output ($M)	**$232**
Total Employment (FTE)	**1,460**
Total Earnings ($M)	**$96**

In addition, the economy activity associated with operations and visitor spending attributable to member gardens generates $6.3 million in annual tax revenue for the Commonwealth of Pennsylvania, while capital investments over the past three years have generated an additional $4.8 million in state tax revenue. [1]

Visitation

The economic impact of member gardens is largely a function of their visitation, which generates revenue to support operational and capital activities and produces significant ancillary visitor spending throughout the region. **On an annual basis, member gardens collectively attract an estimated 2.5 million visitors.** Visitor surveys undertaken at member gardens indicate that a significant proportion of these visitors (nearly one third) are from out of town, and approximately half are discretionary visitors, who are in the region by choice. Further, respondents to the survey tended to be high income, highly educated, and older than average.

Collectively, this visitor profile indicates that gardens are playing an important role in attracting a highly valuable travel demographic to the region. Discretionary visitors, and particularly those from outside of the region, are a highly competitive group among tourism destinations, because they can easily substitute one destination for another depending on interests and preferences. As the baby boomer cohort reaches retirement age in large numbers, their discretionary travel dollars will be a major driver of growth across the tourism industry. **Cultural and aesthetic institutions like the GPG member gardens are crucial to the Philadelphia region's ability to attract and entertain these visitors, and capture their impacts broadly across the tourism sector**.

[1] Note that it is not possible to quantify all of the economic and fiscal benefits associated with all member gardens, in part because not all members have gardens that are separable from larger institutions (including museums, colleges, and industry advocacy organizations), and in part because a detailed analysis of nearby property impacts is outside of the scope of this study. Nonetheless, the quantified impacts demonstrate the considerable size, scope and economic importance of garden members to the regional economy.

1.0 INTRODUCTION

1.1 GREATER PHILADELPHIA GARDENS AND ITS MEMBER INSTITUTIONS

Greater Philadelphia Gardens ("GPG") is a consortium of more than 30 public gardens, arboreta, historical landscapes and supporting organizations located within 30 miles of Philadelphia. Since 1989, the consortium has jointly promoted and encouraged visitation to its member gardens, which represent one of the key components of the region's leisure and tourism economy. The collective has branded the region "America's Garden Capital" to reflect the breadth, quality and variety of public garden offerings available all year long in the region. The collective includes a diverse array of organizations large and small, and provides a common branding and marketing platform, including online at americasgardencaptal.org.

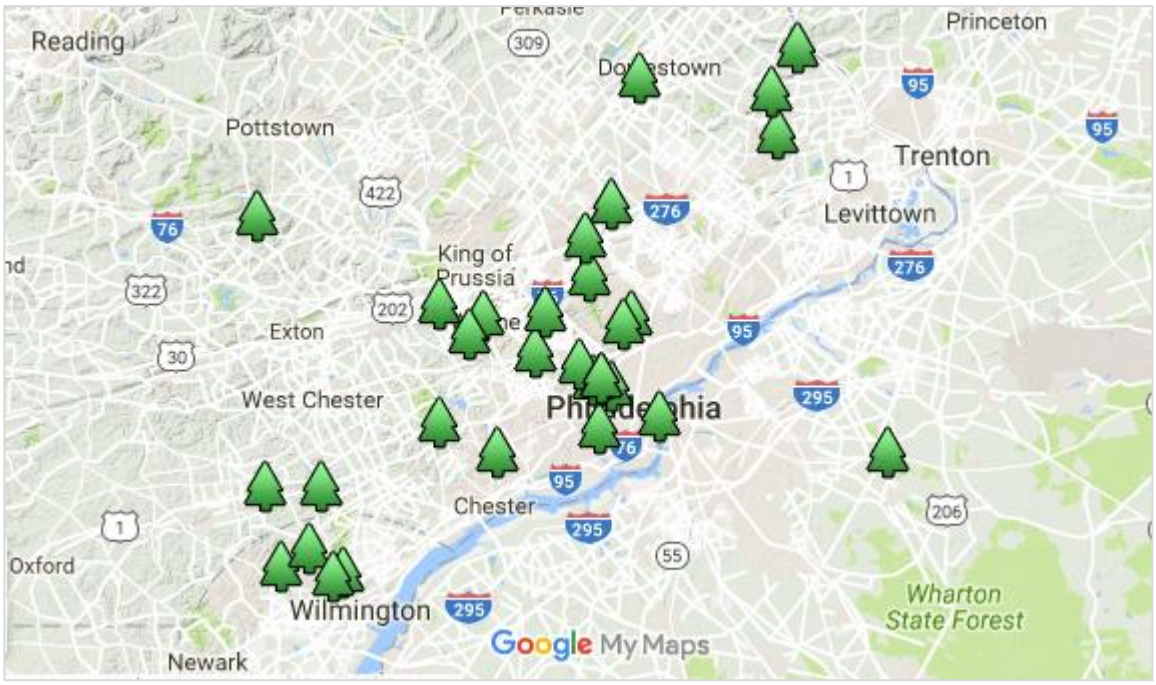
While gardens are traditionally discussed in terms of their aesthetic and cultural value, they are of significant economic importance as well. Gardens are an amenity valued both by locals and visitors, and as such represent both a significant source of economic activity and value within the regional economy and a major component of the region's tourism product:

- Garden visitation by both locals and out of towners supports the operating activities of gardens, generating employment and spillover economic activity
- Capital investments undertaken by gardens generate a significant volume of activity in the construction activity, and further enhance the region's tourism product through enhancements to visitor-serving facilities
- Tourists attracted by out of towners bring new spending into the region which is captured across the economy, which circulates through a variety of visitor-serving sectors (food and beverage, lodging, retail, etc.)
- Further, the aesthetic and recreational value of gardens enhances nearby property values and enhances quality of life for regional residents.

The dual purpose of this report is to understand and articulate the character of this visitation, and to calculate the magnitude of impact from GPG's economic footprint within the Philadelphia region.

Figure 1.1 below shows the location of member gardens throughout the Greater Philadelphia region. The majority of member gardens (and the locus of associated economic activity) are located in Pennsylvania, but member gardens are also located in New Jersey and Delaware. The full list of member organizations in the Greater Philadelphia Gardens collective is included as Appendix A in this report.

FIGURE 1.1 – LOCATION OF GPG MEMBER GARDENS



Source: Google Maps (2016)

1.2 OVERVIEW OF REPORT

The purpose of this report is to describe and quantify where possible the nature and magnitude of visitation to gardens in the Philadelphia region, and their economic importance. The report proceeds as follows:

- Section 1 report describes in categorical terms the varied ways in which GPG member institutions contribute to the regional and state economy, and describes the methodology undertake to quantify this economic impact within the Commonwealth of Pennsylvania.

- Section 2 discusses the level and nature of visitation to member gardens, relying both on information provided by member gardens and on results of an intercept survey of nearly 500 visitors to member gardens conducted in the spring and summer 2016.

- Section 3 quantifies the economic impact to the Commonwealth of Pennsylvania of direct and indirect effects of operating expenditures, capital investments and ancillary visitor spending attributable to member gardens on an annual basis, in terms of total economic output, employment and wages supported, and taxes generated.

1.3 ECONOMIC BENEFITS DELIVERED BY GPG MEMBERS

Cultural amenities like those member institutions of Greater Philadelphia Gardens enrich the local economy in a number of ways. Their collective economic footprint as employer, purchasers of goods and services and initiators of capital investments is sizable, yielding significant spillover economic activity. Their presence and reputation also attracts and increases visitor spending from outside the region, which accrues across a number of sectors and then circulates through the local economy. And the real estate market considers their presence as an amenity, thereby increasing property values. This section discusses these benefits in categorical terms, and describes which economic benefits are most relevant to which type of institutions within the GPG consortium. These benefits are returned to and quantified within Section 3 of this report.

Operating Expenditures and Capital Investments

The economic impact of GPG members is seen most directly through the direct footprint of their operating and capital spending. Collectively, member gardens are a major center of local employment, and significant procurer of goods and services, much of which benefits the local economy.

Due to the nature of their activities, gardens make significant investments in the physical environment. This includes both standard maintenance and grounds keeping activities, which typically fall under operational activity, and larger capital investments in new or upgraded facilities and exhibits, which occur less regularly but can result in significant spending infusions.

All of this direct operating activity yields significant indirect (supply chain) and induced (spending of labor income) economic impacts as spending re-circulates through the local economy.[2]

Ancillary Visitor Spending

Cultural amenities like gardens cater to a mix of local and out of town visitors. When out of towners are attracted to the region in whole or in part by the desire to visit one or more gardens, those gardens are partially responsible for a broad range of spending associated with a trip to the region.

Garden visitors have a spending footprint both inside of the garden (on tickets, food, plants, etc.) and outside of the garden on other aspects of their trip (food and beverage, lodging, entertainment, etc.). From the standpoint of calculating aggregate economic impact, spending within the garden is already captured within the operational profile of the members (since this revenue supports operational expenditures already separately accounted for). Therefore, this analysis seeks to capture “ancillary” visitor spending, meaning that spending by out of town visitors that takes place outside of member gardens, but is attributable to those gardens in that it would not have taken place in their absence.

[2] See Section 1.4.3 and Appendix D for more information on indirect and induced effects and ESI’s approach to estimating total economic impact.

In addition to ancillary spending on trips attributable to member gardens, garden visitors drawn by other trip motivators have their overall destination experience enhanced by their visit to a member garden. Gardens may therefore enhance the region's reputation as a tourism destination, the quality of the visitor experience, and the volume of activity and spending taking place, even in instances where they do not serve as the primary trip motivator.

Property Values

Cultural and aesthetic amenities also have well-documented positive impacts on nearby property values. The connection between green spaces and property value in the Philadelphia region was documented at length by a 2010 study which documented a variety of economic impacts associated with open space and concluded that that $16.3 billion is added to the value of southeastern Pennsylvania's housing stock as a result of protected open space.[3] Numerous other studies have found evidence positive property value impacts from horticultural amenities. For example, a study in the neighborhood of Cox Arboretum in Dayton, Ohio found an estimated 5 percent of average residential selling price is attributable to proximity of the park and arboretum.[4] Studies have also shown that the quality of the green space matters: property value increases are likely to be largest in green space where the open space takes precedence over highly developed facilities, there is limited vehicular access but still recreational access, and effective maintenance and security presence.[5,6]

Property value impacts vary based on the specifics of each garden and its surrounding community. Estimating these impacts rigorously requires taking into account specific geographic factors and holding constant other components of real estate quality to isolate the incremental impacts of proximity to a garden. Further, impacts will vary based on the nature of nearby property. For example, a garden located in an urban residential area will have different impacts from a garden located near a commercial area, or in a more rural area. Such a comprehensive analysis for all member gardens is outside of the scope of this study. Nonetheless, it is instructive to consider the potential property value impacts from a couple of member gardens to develop an understanding of the potential order of magnitude of this impact. For example:

- Wyck Historic Garden is located Northwest Philadelphia. Within a half-mile radius of its location is $342 million in total assessed value of residential properties.
- Bartram's Garden is located in West Philadelphia. Within a half-mile radius of its location is $127 million in total assessed value of residential properties.

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[3] *The Economic Value of Protected Open Space in Southeastern Pennsylvania*, Economy League of Greater Philadelphia, Econsult Corporation, Keystone Conservation Trust for GreenSpace Alliance and Delaware Valley Regional Planning Commission (2010).

[4] Kimmel, Margaret M. 1985. "Parks and Property Values: an Empirical Study in Dayton and Columbus, Ohio." Thesis. Oxford, OH: Miami University, Institute of Environmental Sciences.

[5] Brown, Tommy L., and Nancy A. Connelly. "State Parks and Residential Property Values in New York." Ithaca, NY: Cornell University, Department of Natural Resources.

[6] Colwell, Peter. 1986. "Open Space on Real Estate Values." Proceedings of the Governor's Conference on the Economic Significance of Recreation in Illinois. Springfield, IL: Office of the Governor.

Note that aggregate adjacent residential property values vary between these two gardens in part due to the character of surrounding homes, and in part due to the density of residential property within the radius, which is limited in the case of Bartram's garden by large commercial properties in the vicinity, and by the presence of the Schuylkill River. Therefore, these two sample gardens span some of the many locational characteristics which will impact nearby properties values for different gardens.

- Applying the 5 percent premium on nearby residential properties observed in the study of Cox Arboretum in Dayton, Ohio to the $469 million in assessed residential value within a half-mile of these two gardens yields a premium of $23 million in nearby residential property value for these two gardens alone.

Such increases in property values are economically significant both to local households and to local government entities. Homes are the largest asset on the balance sheet of many families, and therefore increases in home values translate into increased household wealth and ultimately to spending. Further, property taxes are the primary revenue source for most municipalities and school districts. Increases in property values therefore translate into increased revenue to support these services, without raising tax rates.

Institutional and Industry Enhancement

Finally, for some member institutions, gardens may not represent discrete visitor attractions, but instead are a component enhancing the attractiveness of their overall institution. This description is applicable to important regional institutions like the Philadelphia Zoo, which features children's gardens as a complement to its animal main attractions, Brandywine River Museum, where gardens complement its valuable art collection, and gardens contained within large scale institutions like colleges and universities. In these instances, gardens play an important role in these instances in enhancing the overall attractiveness of these institutions, which in turn are major economic drivers for the region. However, gardens are not the primary driver of the visitation or economic activity taking place within these institutions, and thus it is appropriate to conservatively exclude the broad operating footprint of these institutions from quantification within this study.

Similarly, some members are not primarily operators of gardens, but rather industry advocates. These include the Natural Lands Trust, which is the region's largest and most comprehensive conservation organization dedicated to the preservation of open space, and the Pennsylvania Horticultural Society, one of the nation's largest and oldest membership organization for lovers of horticulture. The full operating footprint of these organizations is again excluded from this analysis, but their contribution is evident in their influence in developing, promoting (and in some instances funding) garden assets throughout the region, which in turn is reflected in the operating activities of the member gardens.

Major Economic Benefits by Garden Type

As described above, not all gardens have the same type of impact from a regional and state economic benefit standpoint. For example, destination attractions that bring in new visitor spending from outside the region have a different economic profile than local attractions that rely on regional visitation, and institutions that operate a discrete garden are different from those in which the garden is a component of a larger institution.

Table 1.1 below summarizes the major categories of impact associated with the four garden types defined in this report:

TABLE 1.1 – CATEGORIZATION OF ECONOMIC BENEFITS BY GPG MEMBER TYPE

Member Type	Major Economic Benefits
Destination Attractions	Operations, Capital Investments, Ancillary Visitor Spending, Nearby Property Values
Local Attractions	Operations, Capital Investments, Nearby Property Values
Component of Institutions	Enhance Appeal and Impact of Institution
Industry Advocates	Enhance Impact of Industry

As described throughout this section, not all economic benefits associated with member gardens are quantifiable within the scope of this report.

- Benefits of garden components of large organizations are difficult to disaggregate from the institution as a whole, although they do increase attractiveness of institution as a whole and thus institutions are major economic drivers. These impacts are conservatively excluded from the report, unless operating expenditures or capital investments specific to garden activities could be isolated.
- Similarly, the operating footprint of industry advocacy organizations (including GPG itself) are considered to be reflected in their impact on member gardens, and are not additively included in this analysis.
- Property value impacts vary based on the specifics of each garden and its surrounding community. As noted above, a rigorous and comprehensive analysis of these impacts is outside the scope of this study, although empirical research has demonstrated the connection between green space and property values in many contexts, and an analysis of residential property values in close proximity to two sample member gardens shows that these values increases likely yield significant gains to regional homeowners.

The categories of economic impact calculated within the report are therefore operating expenditures, capital investments, and ancillary visitor spending attributable to member gardens. All calculations are undertaken at the aggregate level for the collective, rather than for any singe garden individually. Impacts include Impacts include direct, indirect and induced expenditures, and are measured in economic output, employment and tax revenue within the Commonwealth. The methodology undertaken to estimate these aggregate impacts is described in Section 1.4 below.

1.4 REPORT METHODOLOGY

This report relies on a mix of primary data collection and data provided by the institutions to determine the size and nature of the collective economic footprint of member institutions. Industry standard economic modeling techniques are then used to translate this direct economic activity in total economic impact within the Commonwealth of Pennsylvania.

1.4.1 VISITOR SURVEY

Intercept surveying was conducted at member institutions to gain information on the composition of visitors to the gardens and their trip characteristics. Surveying was executed by institution employees based on a standardized survey developed by Econsult Solutions, Inc. (ESI).[7] Four-hundred-eighty-five responses were collected between May 14 and June 27, 2016. ESI recommended this scope because a longer or larger survey would not have produced significantly different results. The cost of a multi-year study would not have been justified due to the diminishing returns of larger-scale surveys.

Response sample sizes for a given institution are too small to be statistically representative. Therefore, all responses are presented in aggregate across member institutions. Section 2.2 of this report reviews in detail the profile of visitors developed from this visitor surveys.

1.4.2 MEMBER SURVEY

In addition to visitor surveys, data was collected directly from member organizations on operational levels relevant to the calculation of economic impacts in Section 3. An online survey created by ESI was sent to each member organization.[8] Responses were received from 20 organizations, which collectively are estimated to represent the vast majority of total operating activity for GPG members.

Responses from organizations included detailed information regarding:

- Operating Budget
- Capital Investments
- Visitation Information
- Event Programming

These aspects of each member organization allowed ESI to perform a detailed analysis of the economic impact of the GPG institutions, as shown in Section 3. In cases where information was not provided by members, impacts were estimated based on publicly available information, notably including IRS 990 non-profit organizational reports, and publicly released attendance figures.

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[7] See Appendix B for the full survey.

[8] See Appendix C for the full survey.

1.4.3 ECONOMIC IMPACT METHODOLOGY

Economic impact estimates are generated by utilizing input-output models to translate an initial amount of direct economic activity into the total amount of economic activity that it supports, which includes multiple waves of spillover impacts generated by spending on goods and services and by spending of labor income by employees. This section summarizes the methodologies and tools used to construct, use, and interpret the input-output models needed to estimate the economic impact of the Greater Philadelphia Gardens institutions.[9]

The economic impact from direct expenditures associated with both organizational operations and visitor spending associated with the institutions can be modeled using IMPLAN, an industry standard input-output model software program. Such models are designed to estimate two sets of spillover impacts from direct expenditures:

- The indirect effect, which measures the multiplier effect from the purchase of goods and services from local vendors; and
- The induced effect, which measures the multiplier effect from the spending of labor income by employees within a particular geography.

The total economic impact of GPG institutions is the sum of their own direct economic footprint (in terms of both organizational spending, and ancillary spending by the visitors they attract), plus the indirect and induced effects generated by that direct footprint. Direct organizational expenditures are reported by the member institutions (see Section 2.4) while direct ancillary visitor spending is estimated from attendance and industry sources (see Section 4.3). Input-output modeling is then used to determine the indirect and induced effects of those direct inputs, which are added to determine overall economic output. For the purposes of this report, economic impacts were measured for Philadelphia County and for the Commonwealth of Pennsylvania.

Direct expenditures are modeled in the sector in which they occur, each of which has unique multipliers for indirect/induced and employment impacts within IMPLAN, depending on the degree of leakage from the local economy within that sector. The role of input-output models is to determine the linkages across industries in order to model out the magnitude and composition of spillover impact to all industries of a dollar spent in any one industry. This approach allows for a more realistic estimate than one derived using a generic multiplier applied to all expenditures.

1.4.4 ABOUT ECONSULT SOLUTIONS

ECONSULT SOLUTIONS
economics | policy | strategy

This report was authored by Econsult Solutions, Inc., a Philadelphia-based economic consulting firm. It provides businesses and public policy makers with economic consulting services in urban economics, real estate economics, transportation, public infrastructure, development, public policy and finance, community and neighborhood development, and planning, as well as litigation expert witness support services.

[9] See Appendix D for additional information on the input-output methodology used.

2.0 GARDEN VISITATION AND VISITOR PROFILE

2.1 GARDEN VISITATION

Gardens are a key component of the Philadelphia region's tourism and recreation infrastructure, and visiting gardens is a popular activity for residents and visitors alike. One important measure of this activity is aggregate garden attendance.

As described in Section 1, the GPG consortium encompasses a variety of member types. Many gardens are ticketed attraction and can easily define their attendance on an annualized basis. For others, attendance is more challenging to project, either because the gardens are not ticketed or tracked, or because the gardens are a component of a larger institution of attraction such that garden visitation is not separately segmented. Data provided by member institutions provided annual attendance estimates for the vast majority of independent garden attractions. Attendance for the remaining independent garden attractions was estimated utilizing ratio analysis of known payroll levels at those gardens to the ratio between payroll and attendance at gardens for which each of these components was available. Attendance at institutions for which the garden was not a separable component was conservatively excluded from the aggregate total.

Based on this approach, we estimate that aggregate attendance at Greater Philadelphia gardens facilities is **2.5 million** annually**.** The distribution of this attendance by garden size is shown in Table 2.1 below.

TABLE 2.1 – AGGREGATE ANNUAL GARDEN ATTENDANCE BY GARDEN SIZE

Attendance Band	Number of Gardens	Aggregate Attendance
0-20,000	8	60,000
20,000-40,000	5	156,000
40,000-150,000	3	230,000
150,000-500,000	2	687,000
500,000 +	1	1,350,000
Total	**19**	**2,483,000**

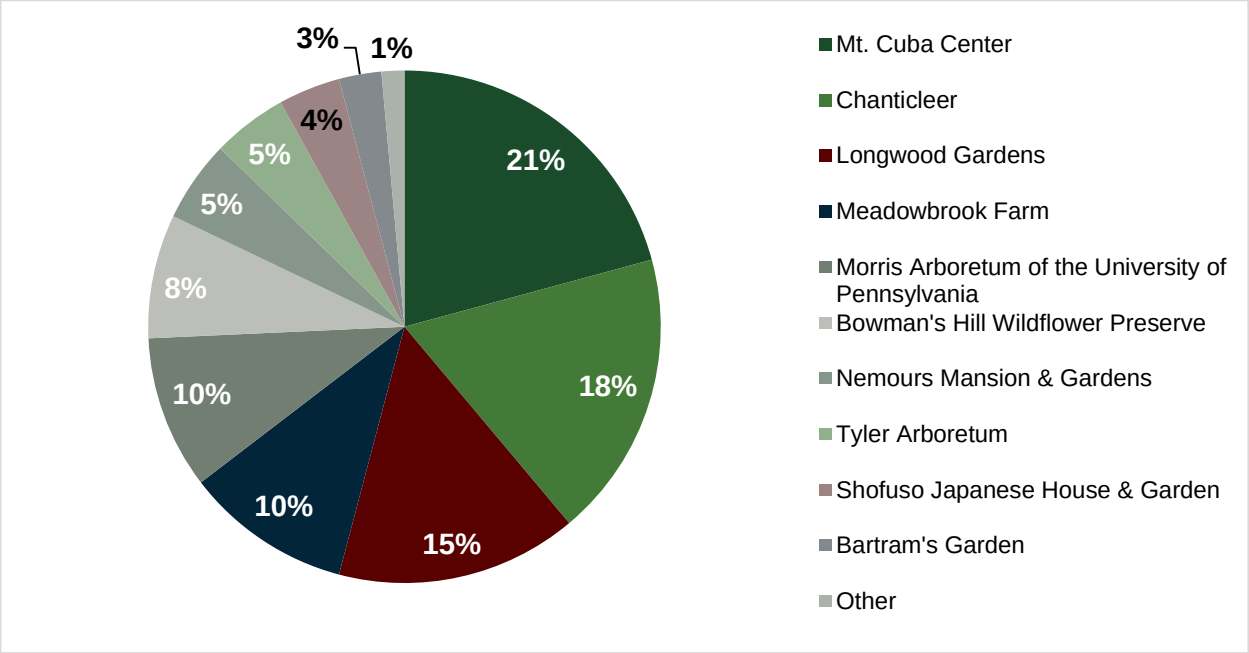
Source: GPG members (2016), Econsult Solutions (2016)

This attendance level means that if viewed collectively, GPG members would represent one of the largest attractions in the Philadelphia region. According to the *Philadelphia Business Journal*'s annual "Book of Lists," only two regional attractions (Independence National Historical Park and SugarHouse Casino) exceed that attendance level on an annual basis.

2.2 VISITOR PROFILE

The gain insight into the nature of the 2.5 million annual visitors to GPG members, intercept surveys were conducted at member gardens over the spring and summer of 2016.[10] Visitor surveys were conducted at 12 GPG member gardens. In total, 485 surveys were completed, with Mt. Cuba Center, Chanticleer, and Longwood Gardens accounting for 54 percent of total surveys (see Figure 2.1).

FIGURE 2.1 – LOCATION OF SURVEY



Source: GPG visitor survey (2016)

It is important to note that intercept surveying was conducted by garden staff across the busiest time of the year in order to capitalize on available resources, and did not follow rigorous statistical sampling techniques. Therefore, while the sample size is significant in the aggregate, visitor profile information should be considered directional rather than definitive as far as its representativeness of the full spectrum of visitor activity across member gardens in a given year.

Demographics

On average, GPG visitors are older, more highly educated, and high income. The average age of survey respondents was 54 years old and the annual income was $108,000. Forty-six percent of respondents were employed full time, and 49 percent had a graduate or professional degree; 83 percent had at least a bachelor's degree (see Table 2.2).

[10] See Section 1.4.2 for further description of this survey methodology, and Appendix B for the full text of the survey

TABLE 2.2 – VISITOR SURVEY RESPONDENT DEMOGRAPHICS

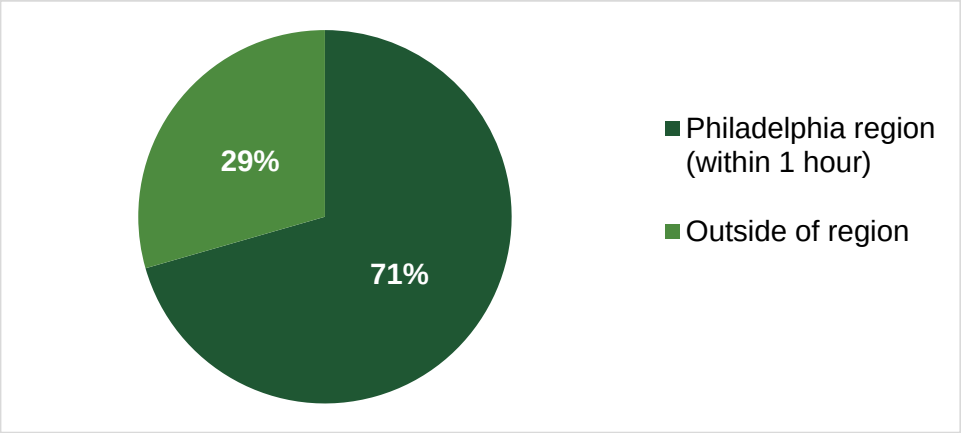
Age	%	HH Income	%	Employ Status	%	Edu Level	%
Average	**54**	**Average**	**$108,000**	**Employed FT**	**46%**	**Grad/Prof Degree**	**49%**
< 25	4%	< $25K	6%	**Retired**	**34%**	**Bach. Degree**	**34%**
25-34	13%	$25-50K	20%	Employed PT	12%	Assoc. Degree	3%
35-44	12%	$50-100K	28%	Student	5%	Some College	9%
45-54	15%	$100-150K	27%	At home parent	3%	High School / less	5%
55-64	27%	$150-250K	14%	Other	2%		
>65	30%	>$250K	6%				

Source: GPG visitor survey (2016)

Broadly speaking, this visitor profile is heavily weighted towards the affluent and highly educated segment of the baby boomer cohort. As this cohort reaches retirement age in significant numbers, they are a highly attractive visitor segment, with significant discretionary spending power. In addition to spending related to travel activities, respondents also reported that they spent an average of $342 per year on activities and items related to gardening, including garden supplies, landscaping, admissions and memberships to gardens, and flower shows.

Visitors who completed the survey were primarily local to the area. Respondents were asked if they lived within one hour of the garden they were visiting. Those who responded “yes” were considered to be from the Philadelphia region. Seventy-one percent were from the region and 29 percent lived more than an hour away from the garden they were visiting (see Figure 2.2).

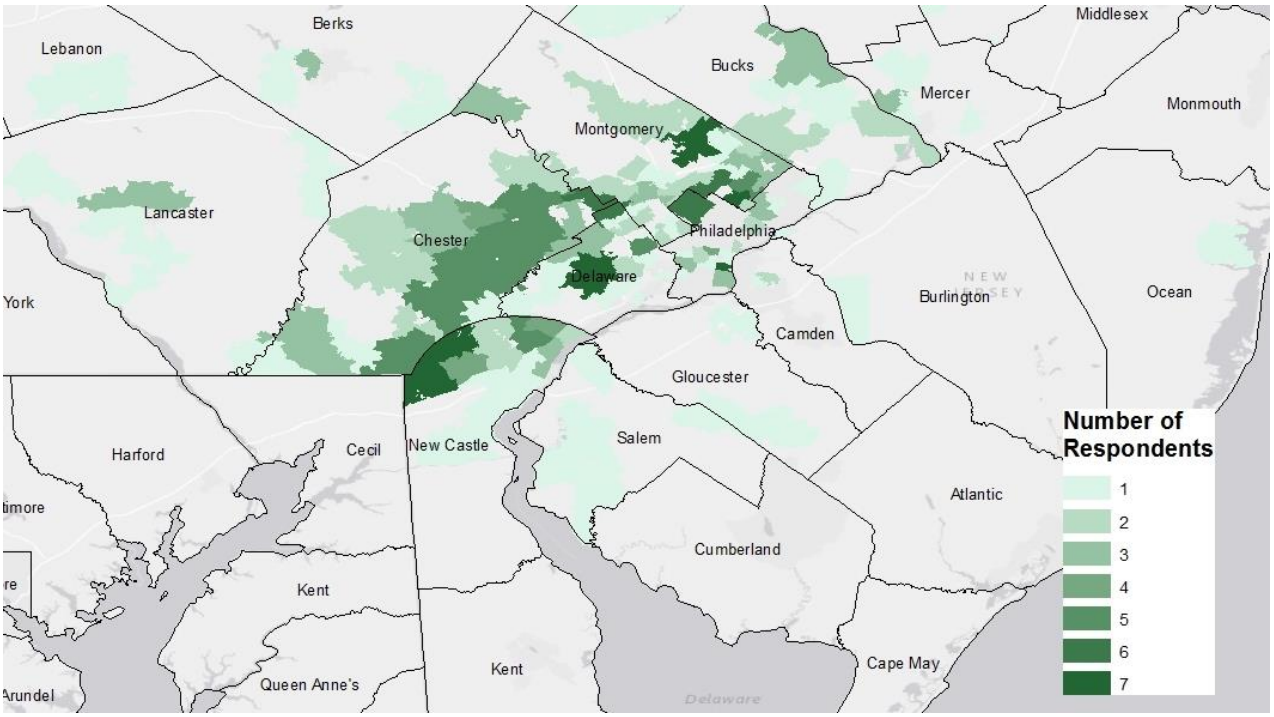
FIGURE 2.2 – RESPONDENTS: “WHERE ARE YOU FROM?”



Source: GPG visitor survey (2016)

Survey respondents lived throughout the Philadelphia region, originating from all counties in the 11-county area. However, clusters of visitors were concentrated in Delaware County, eastern Chester and Montgomery Counties, the Center City and Northwest sections of Philadelphia in Pennsylvania, and northern New Castle County in Delaware (see Figure 2.3).

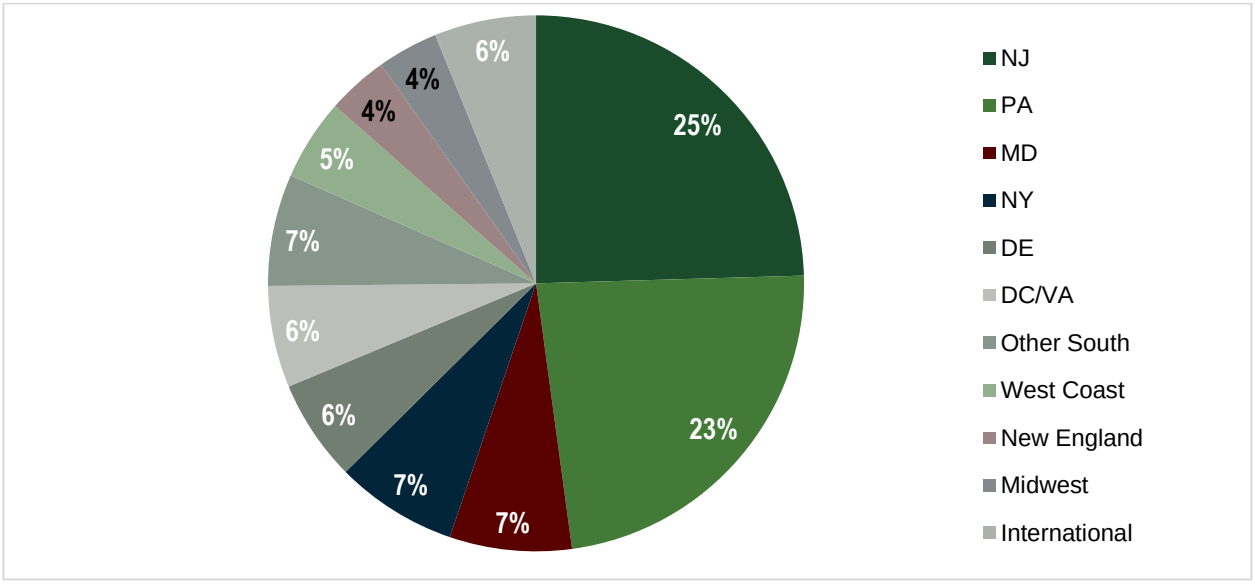
FIGURE 2.3 – LOCAL RESPONDENTS BY ZIP CODE



Source: GPG visitor survey (2016)

The majority of non-local respondents lived in the Mid-Atlantic region. Residents of New Jersey and Pennsylvania outside the Philadelphia region accounted for 48 percent of non-local respondents, while Maryland, New York, and Delaware residents accounted for another 20 percent (see Figure 2.4). In total, there were respondents from 22 states and 10 countries.

FIGURE 2.4 – OUT OF REGION RESPONDENTS BY HOME LOCATION

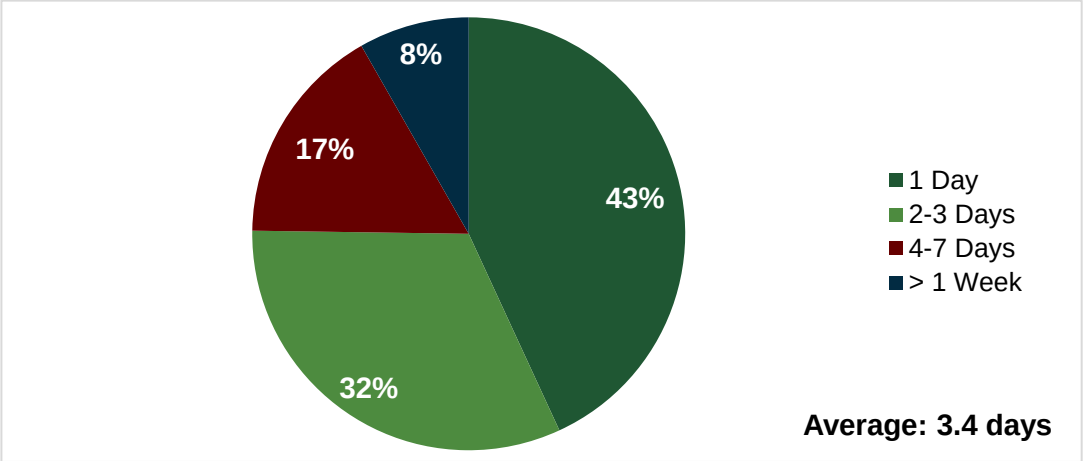


Source: GPG visitor survey (2016)

Out of Town Visitor Characteristics

More than 40 percent of non-local respondents were visiting the garden on a day trip to the Philadelphia region, while another 32 percent of respondents were visiting the area for 2-3 days (see Figure 2.5). On average, non-local respondents were visiting for 3.4 days.

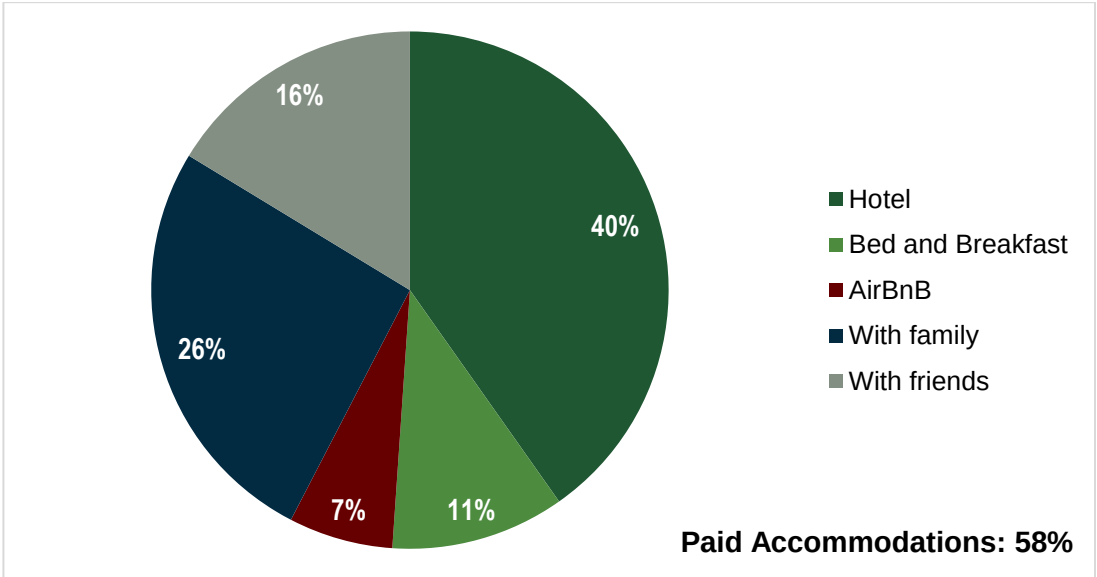
FIGURE 2.5 – NON-LOCAL RESPONDENTS: "HOW MANY DAYS ARE YOU STAYING IN THE PHILADELPHIA AREA?"



Source: GPG visitor survey (2016)

For non-local respondents who were staying overnight in the Philadelphia region, 58 percent were staying in paid accommodations, including hotels (40 percent), bed and breakfasts (11 percent), and AirBnBs (see Figure 2.6).

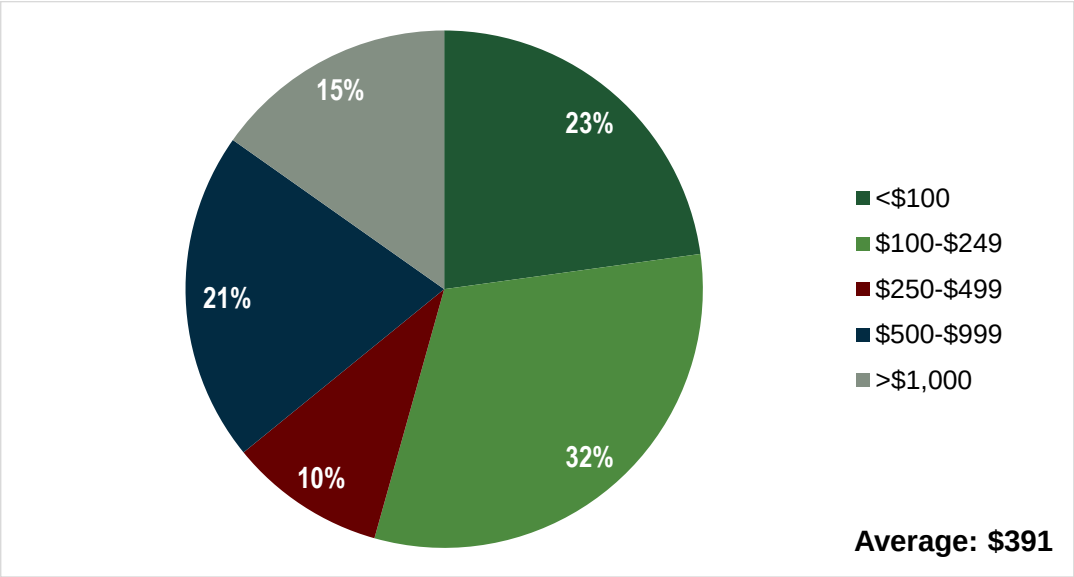
FIGURE 2.6 – NON-LOCAL RESPONDENTS: "WHERE ARE YOU STAYING DURING YOUR VISIT TO PHILADELPHIA?"



Source: GPG visitor survey (2016)

Non-local residents expected to spend $391 per person on average on their visit to the Philadelphia area, with 36 percent spending more than $500 (see Figure 2.7).

FIGURE 2.7 – NON-LOCAL RESPONDENTS: "HOW MUCH PER PERSON DO YOU EXPECT TO SPEND ON YOUR VISIT TO THE PHILADELPHIA AREA?"



Source: GPG visitor survey (2016)

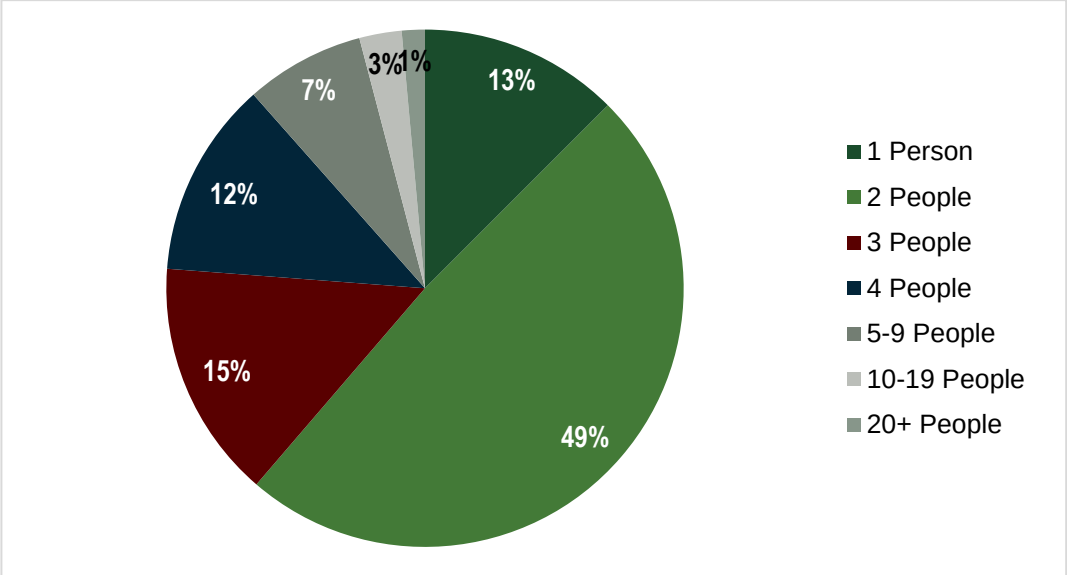
These out of town visitors are particularly relevant from an economic impact standpoint because they bring new dollars into a region (as opposed to local spending that may be shifted from another sector). The strong spending profile seen above is consistent with the demographic profile of these visitors, which is disproportionately high-income and well-educated, suggesting that these visitors have disposable income. It is also consistent with the fact that the majority of overnight visitors report staying in paid accommodations, which benefits the local hospitality industry.

Garden Trip Characteristics

There were some common themes in how survey respondents spent their time at the garden they were visiting.

Forty-nine percent of visitors came as a group of two visitors; while less than one-quarter game in a group of four or more (see Figure 2.8). Among these groups, a significant majority of respondents (83 percent) were visiting without children, while 15 percent of respondents were visiting with 1-2 children. However, the individuals who distributed surveys reported that the results were skewed by the fact that families with children did not take the time to take the survey. At Longwood Gardens, where demographic information is recorded for all visitors, children 18 and under accounted for 21 percent of visitors in 2015.

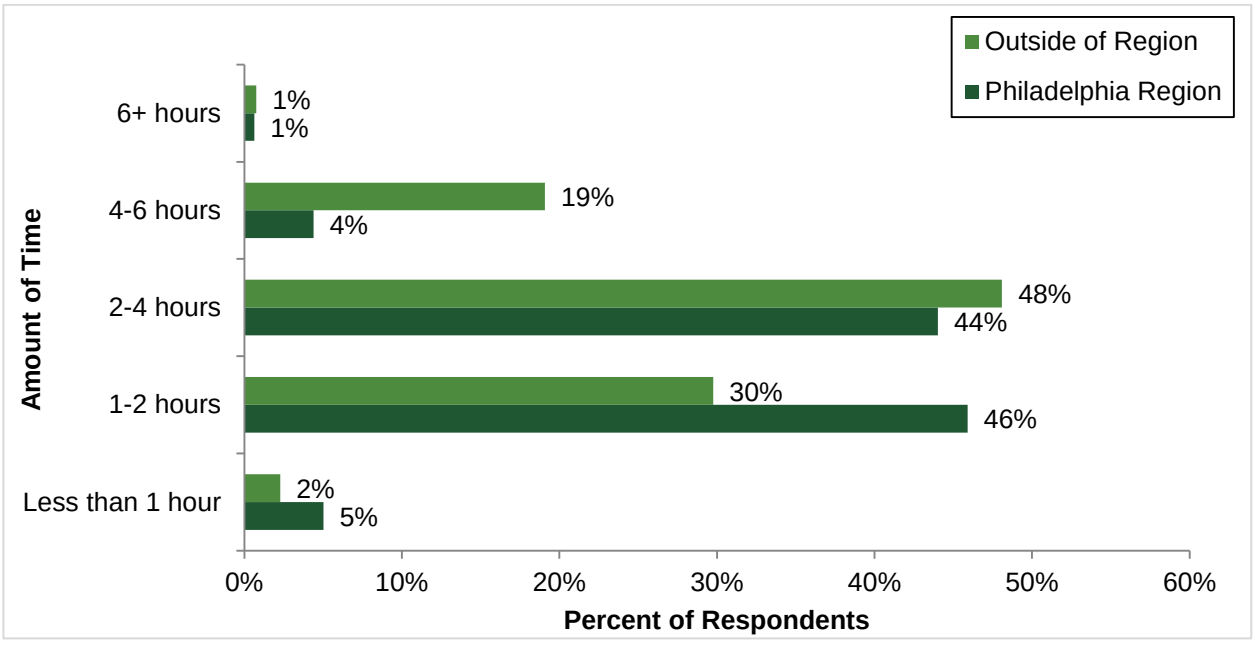
FIGURE 2.8 – "HOW MANY PEOPLE ARE IN YOUR GROUP TODAY?"



Source: GPG visitor survey (2016)

There was a sharp difference between how much time local and non-local residents spent at the garden (see Figure 2.9). Almost half of both local and non-local residents spent 2-4 hours at the garden, but 46 percent of local residents spent 1-2 hours at the garden, compared to 30 percent of non-local residents. Conversely, nearly 20 percent of non-local residents spent 4-6 hours at the garden, compared to less than 5 percent of local residents.

FIGURE 2.9 – "APPROXIMATELY HOW MUCH TIME ARE YOU SPENDING HERE TODAY?"

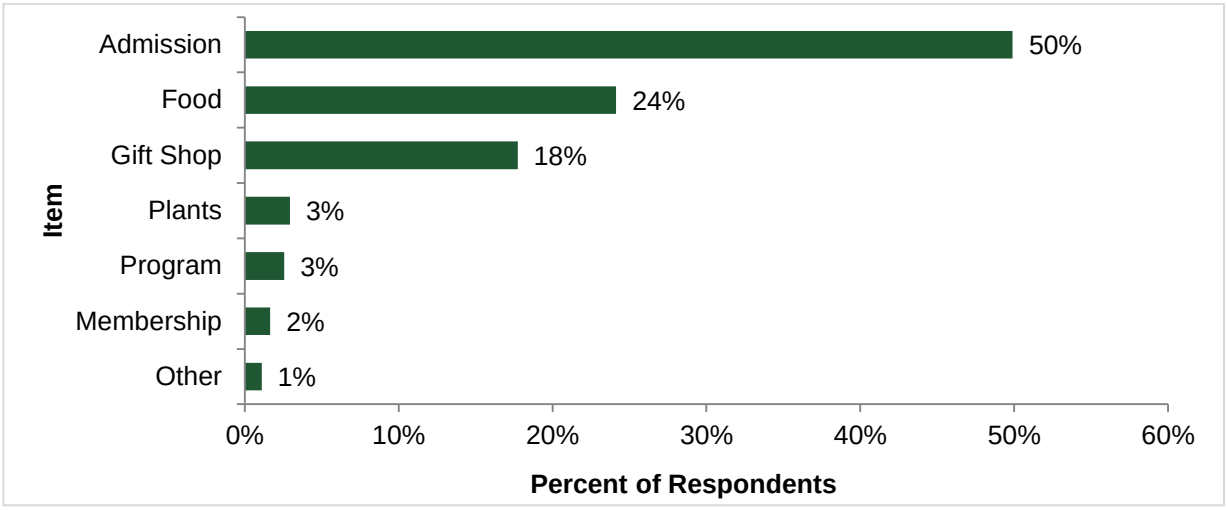


Source: GPG visitor survey (2016)

Outside of Region Average: 2.9 hours
Philadelphia Region Average: 2.3 hours

Seventy-eight percent of respondents reported that they were spending money during their trip to the garden. Among these respondents, half spent money on admission to the garden, while nearly a quarter purchased food on-site. Other spending included gift shop purchases (18 percent), plants (3 percent), a program describing the garden (3 percent), and 2 percent of respondents purchase a membership to the garden during their visit (see Figure 2.10).

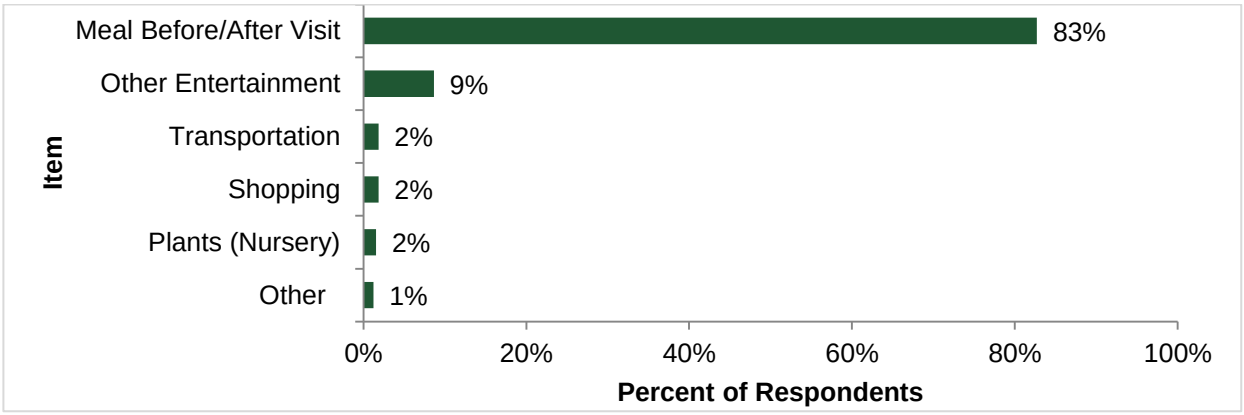
FIGURE 2.10 – "WHAT ARE YOU SPENDING MONEY ON DURING YOUR VISIT? (CHECK ALL THAT APPLY)"



Source: GPG visitor survey (2016)

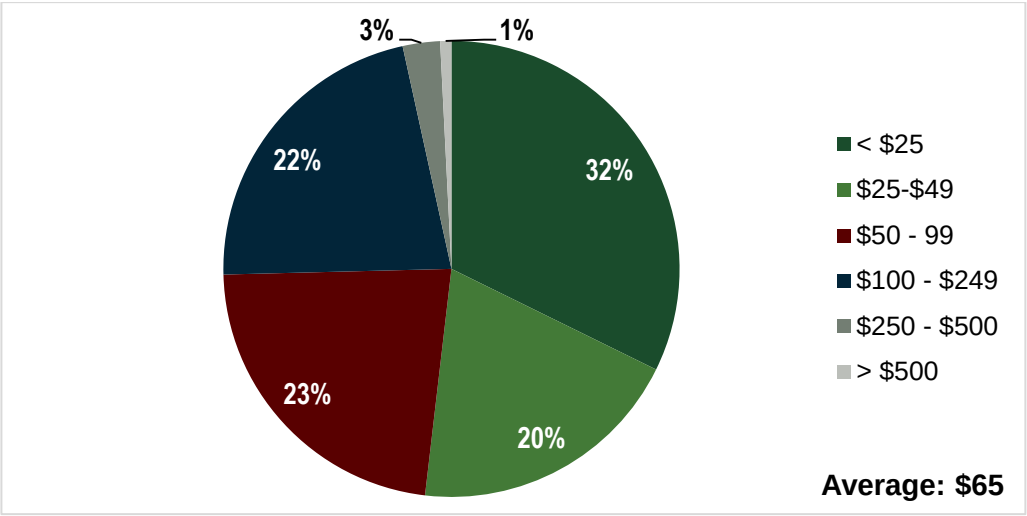
The majority of respondents, 54 percent, reported that they were spending additional money during their day out. Eighty-three percent of those respondents purchased a meal before or after their garden visit, and 9 percent had other paid entertainment in their plans for the day (see Figure 2.11). Other spending included transportation, shopping, and plants at an off-site nursery. The average estimate for total spending was $65 per person (see Figure 2.12).

FIGURE 2.11 – "WHAT ELSE ARE YOU SPENDING MONEY ON TODAY? (CHECK ALL THAT APPLY)"



Source: GPG visitor survey (2016)

FIGURE 2.12 – "HOW MUCH DO YOU ESTIMATE TO SPEND, IN TOTAL, ON YOUR DAY OUT TODAY?"



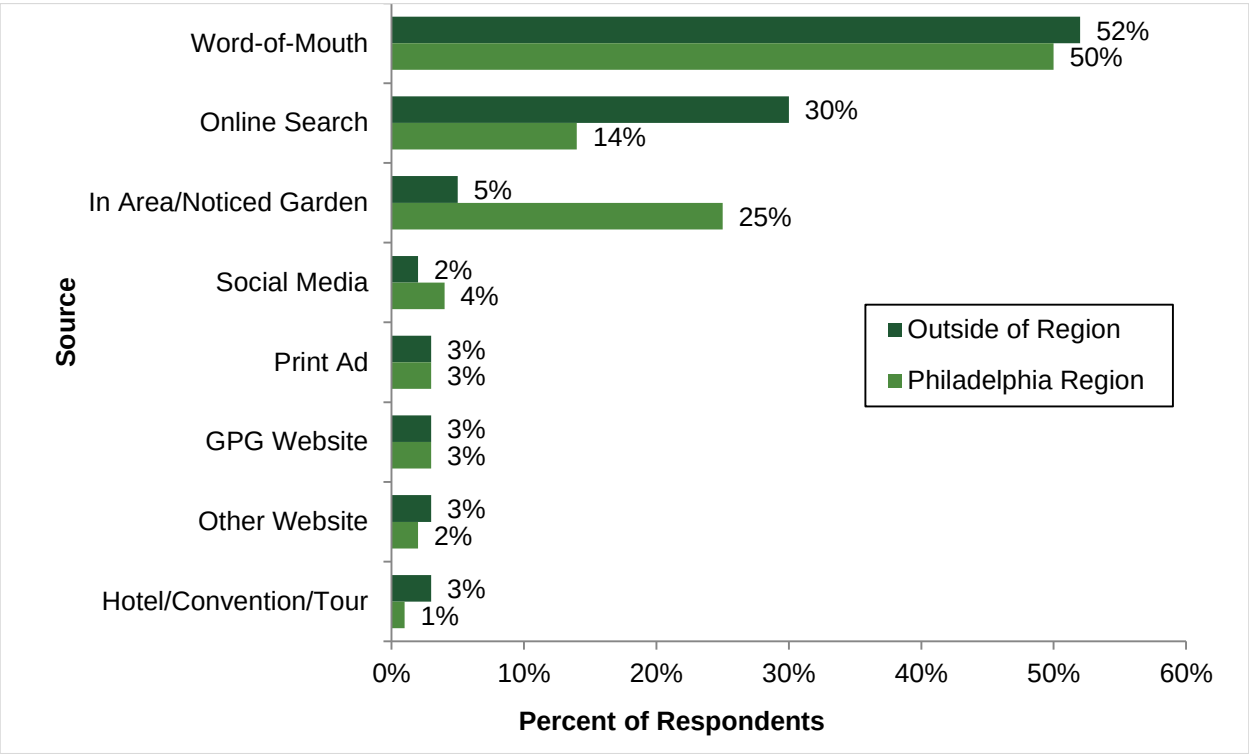
Source: GPG visitor survey (2016)

Finally, nearly all respondents arrived at member gardens by car (97 percent), with public transit, tour bus and walking at approximately 1 percent each.

Garden Visit Planning

A majority of both local and non-local respondents reported that they learned about the garden they were visiting through word-of-mouth (see Figure 2.13). Thirty percent of non-local respondents learned about the garden through an online search, while a quarter of local respondents noticed the garden while they were in the area.

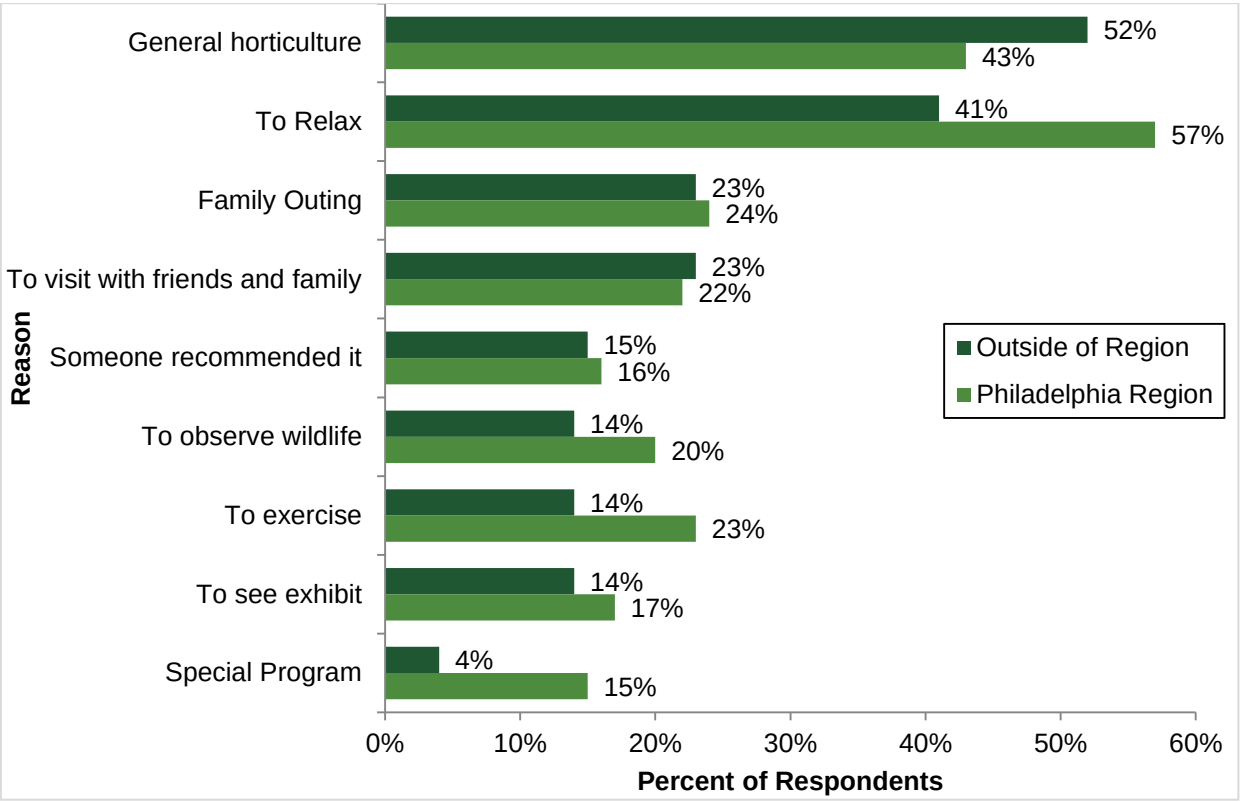
FIGURE 2.13 – "HOW DID YOU FIND OUT ABOUT THIS GARDEN? (CHECK ALL THAT APPLY)"



Source: GPG visitor survey (2016)

The majority of non-local respondents were visiting the garden because of general horticulture, while the majority of local respondents were visiting the garden to relax (Figure 2.14). Local residents were also more likely than non-local respondents to visit a garden to observe wildlife, exercise, and for a special program (see Figure 2.14).

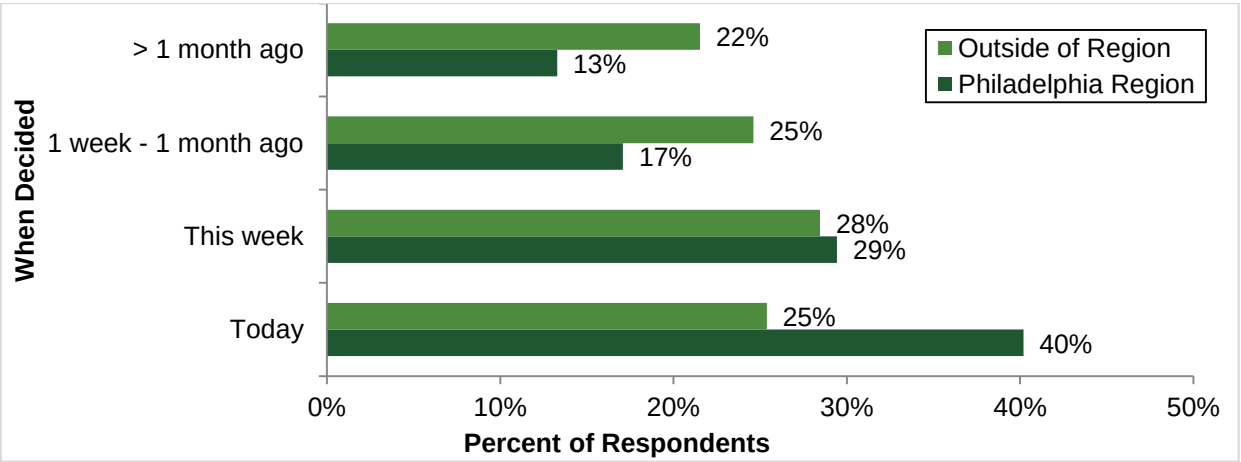
FIGURE 2.14 – "WHAT WERE YOUR MAIN REASONS FOR VISITING THIS GARDEN TODAY?" (CHECK ALL THAT APPLY)"



Source: GPG visitor survey (2016)

Forty percent of local respondents decided to visit the garden that day, compared to just one quarter of non-local respondents (see Figure 2.15). More than 20 percent of non-local respondents decided to visit the garden more than a month in advance.

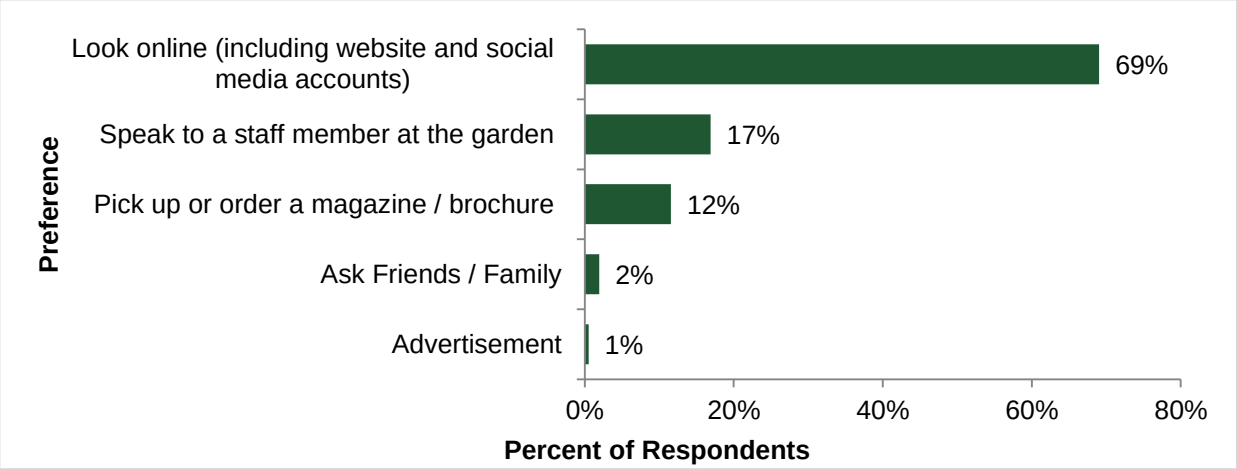
FIGURE 2.15 – "WHEN DID YOU DECIDE TO VISIT THIS INSTITUTION?"



Source: GPG visitor survey (2016)

Nearly 70 percent of respondents stated that they would prefer to look online when they were in the initial stages of planning a garden (see Figure 2.16).

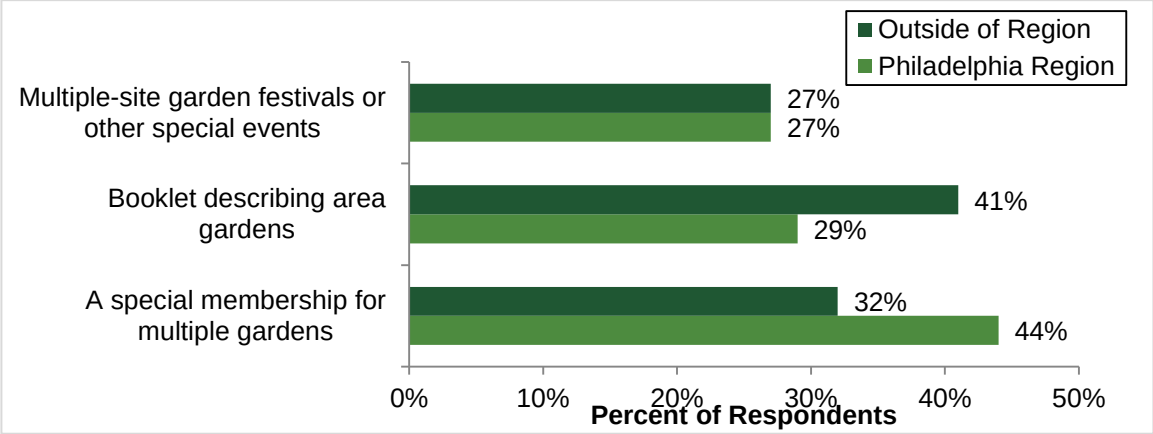
FIGURE 2.16 – "WHEN IN THE INITIAL STAGES OF PLANNING TO VISIT A GARDEN, WOULD YOU PREFER TO: (CHECK ALL THAT APPLY)."



Source: GPG visitor survey (2016)

Eighty-five percent of respondents reported that plan to visit other area gardens in the future, but respondents also indicated that there were factors that would make them more likely to visit additional gardens. Local residents responded that they would be more likely to visit additional gardens if there was a special membership for multiple gardens, while non-local respondents primarily preferred to have a booklet describing area gardens (see Figure 2.17).

FIGURE 2.17 – "WHAT WOULD MAKE YOU MORE LIKELY TO VISIT ADDITIONAL GARDENS IN THE FUTURE



Source: GPG visitor survey (2016)

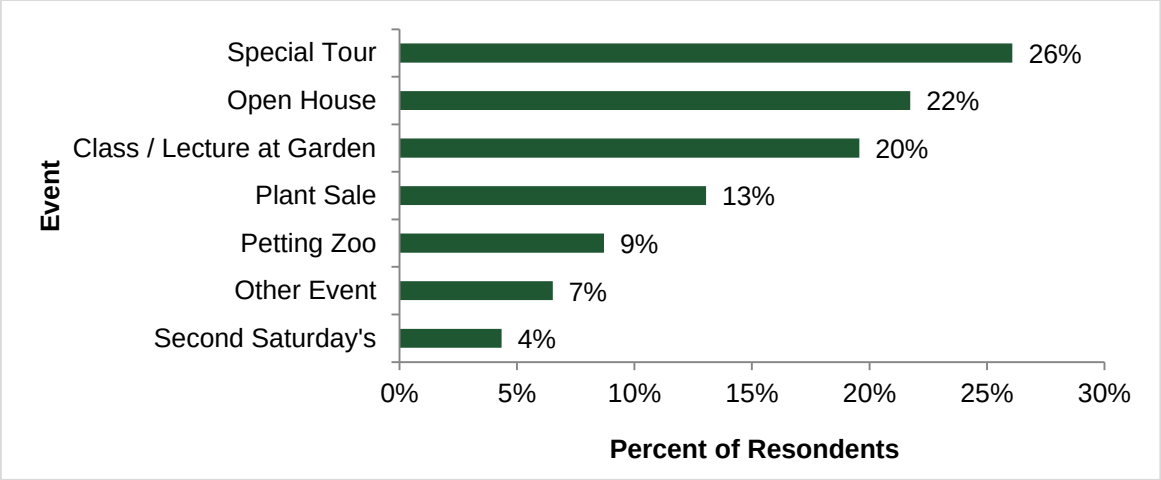
Finally, there was low recognition amongst respondents of Greater Philadelphia Garden's "America's Garden Capital" slogan. Only 18 percent of respondents selected it as the best phrase to describe Philadelphia-area gardens, compared to 69 percent of respondents who selected "Great Gardens Live Here" and 13 percent who selected "Birthplace of Horticulture."

2.3 EVENTS AND COMMUNITY PROGRAMS

While the majority of garden visitors reported visiting the year-round offerings of member gardens, special events and programs also attract a substantial volume of visitation, and accordingly, economic impact. GPG members reported a series of annual events and special exhibitions that add to their normal visitor volume. For many members, special events and festivals drive attendance levels at key times of the year, augmenting the typical attendance numbers enjoyed year-round.

This dynamic is evident among survey respondents, with 19 percent reporting they were visiting for a special event. Figure 2.18 below shows the distribution of event types among those 19 percent, including tours, classes and lectures, and plant sales.

FIGURE 2.18 – SPECIAL EVENTS RESPONDENTS VISITED



Source: GPG visitor survey (2016)

In addition, festivals are major attendance draws, with some members reporting that festivals can attract up to 25 percent of annual visitation. Such events are important from an economic impact standpoint because provide an impetus to visit at a particular time, and larger gardens report that their festivals attract a higher than usual proportion of out of town visitors.

One example of this type of large scale event is PHS's annual Philadelphia Flower Show, which is the largest indoor flower show in the world. PHS estimates that The Flower Show attracts approximately 250,000 visitors each year. As discussed in Section 3, visitors attracted to region by member gardens have a considerable spending footprint on other leisure activities on their visit. In fact, it is estimated that the Flower Show generates $61 million in economic impact, supports 637 jobs, and generates $8 million in city, state and federal tax revenues.[11]

[11] KPMG (2011)

In addition to programming which serves as a major visitor attraction, most gardens reported hosting educational programs consistently throughout the year, making up the majority of their community programming. Additionally, the gardens provide public programs and lectures open to visitors both near and far. Further, member gardens provide offsite events and services, such as lectures and educational events at neighboring public schools and libraries, or consulting / technical assistance to other gardens. While many of these programs are not revenue generating, and therefore are not captured within the scope of this study, they provide considerable social and educational value within the region.

3.0 ECONOMIC AND FISCAL IMPACTS

3.1 GEOGRAPHY OF IMPACT

Each member gardens is within 30 miles of the City of Philadelphia, and GPG categorizes their gardens into six distinct regions[12] which are spread across three states (Pennsylvania, New Jersey, and Delaware). To capture the aggregate economic benefit of these gardens, it is necessary to define the area of impact. For the purposes of this study, "Greater Philadelphia" will include the 11-County region consisting of five counties in PA (Philadelphia, Bucks, Chester, Delaware, Montgomery), five counties in NJ (Camden, Salem, Mercer, Gloucester, Burlington), and one county in DE (New Castle) (see Figure 3.1). All of the direct operating costs associated with the member gardens are assumed to take place within Greater Philadelphia and the results of the economic impact analysis will apply to this region.

FIGURE 3.1 – MAP OF THE 11-COUNTY GREATER PHILADELPHIA REGION



Source: Delaware Valley Regional Planning Commission (2015)

[12] The regions are as follows: Brandywine Valley, Bucks County, Mainline/Delaware County, New Jersey, Northwest Philadelphia, and Philadelphia County.

3.2 ECONOMIC IMPACTS FROM ANNUAL OPERATING EXPENDITURES

Direct Expenditures

The data collected directly from the GPG members through the member survey supplied ESI with the necessary information relevant to their annual operations. Not only did the survey responses provide expenditure detail specific to each garden, but they allowed ESI to determine approximate industry standards for the GPG members as a whole. Where data was unavailable, ESI used information obtained through the member survey to estimate the operating details of a few of the smaller gardens.[13] As noted in Section 1.4, aggregate estimates include only those members with garden operations and visitation that is separable from any larger institution.

Each year, the GPG members spend a significant amount on operations. By hiring local residents, maintaining their gardens and landscapes, organizing events, and developing educational programs, the gardens have a large nominal impact on Greater Philadelphia in various ways. The member gardens, in aggregate, spend approximately $108 million on operations and annually. Of this total, $58 million (or 54 percent) goes to payroll costs (including benefits) while $50 million (or 46 percent) is spent on routine operating costs (see Table 3.1).

TABLE 3.1 – GPG MEMBERS ANNUAL OPERATING EXPENDITURES

Category	Annual Expenditures	Proportion
Employee Costs	$58 M	54%
Non-Employee Operating Costs	$50 M	46%
Total Direct Annual Expenditure	**$108 M**	

Source: GPG members (2016), Econsult Solutions (2016)

Economic Impact

The annual operational spending of GPG members supports a considerable volume of indirect (supply chain) and induced (labor income) effects within the Greater Philadelphia economy. All told, this activity yields a total economic impact of $200 million, supporting 1,080 direct, indirect, and induced jobs with $61 million in annual earnings in Greater Philadelphia (see Table 3.2).

[13] Approximately 20 of the 35 gardens completed the member survey in full.

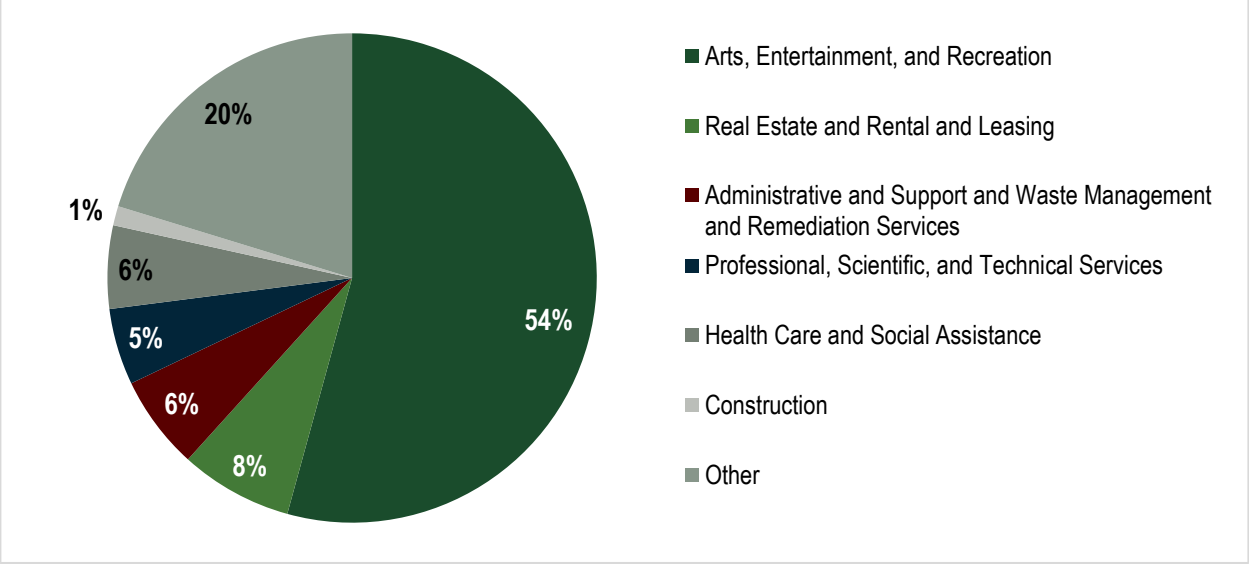
TABLE 3.2 – ANNUAL ECONOMIC IMPACT WITHIN GREATER PHILADELPHIA OF GPG OPERATIONS

Category	Annual Economic Impact
Direct Output ($M)	$108
Indirect & Induced Output ($M)	$92
Total Output ($M)	**$200**
Total Employment (FTE)	**1,080**
Total Earnings ($M)	**$61**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013)

While the majority of the jobs supported by the operations of the gardens are in the Arts, Entertainment, and Recreation industry (54 percent), it is important to note that there are many indirect and induced jobs supported in a range of industries including the real estate industry, the administrative support industry, and the professional services industry (see Figure 3.2).

FIGURE 3.2 – ANNUAL EMPLOYMENT IMPACT WITHIN GREATER PHILADELPHIA OF OPERATIONS



Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013)

3.3 ECONOMIC IMPACTS FROM CAPITAL INVESTMENTS

Capital Investments

Capital investments are those specific projects that go above and beyond routine maintenance and result in new or significantly upgraded facilities. Unlike operational spending, activity of this type tends to be highly variable on an annual basis, depending on need and availability of funding. Accordingly, data was collected over a three year period and the entire impact of that construction period is reported in aggregate.

Over the last three years, the GPG members have spent approximately $116 million on construction projects within their gardens.[14] Ninety-million dollars of this total is currently being spent at Longwood Gardens as they replace their 83-year old fountains and add new water choreography. The investment, which they have titled "New Heights: The Fountain Revitalization Project" is set to be completed by the spring of 2017. Other recent projects include the renovation of the Winterthur house at the Winterthur Museum, Garden & Library and the additions at Bartram's Garden, which include the new Ann Bartram Carr Garden and a mile-long hiking trail.

Economic Impact

Capital investments by the GPG members represent a significant amount of construction activity, which supports construction-related jobs, creates demand for various goods and services, and generates statewide tax revenues. As the gardens continue to grow and improve, the local economy will realize the benefits of additional business activity and job opportunities. During the three year construction period, the $116 million spent had a one-time economic impact of $232 million and supported 1,460 jobs with $96 million in earnings (see Table 3.3).

TABLE 3.3 – ONE-TIME ECONOMIC IMPACT OF MEMBER GARDENS' CAPITAL INVESTMENTS WITHIN GREATER PHILADELPHIA, PAST THREE YEARS

Economic Impact	Greater Philadelphia
Direct Output ($M)	$116
Indirect & Induced Output ($M)	$116
Total Output ($M)	**$232**
Total Employment (FTE)	**1,460**
Total Earnings ($M)	**$96**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013)

Importantly, while the direct spending in this category supports the regional construction activity, the spillover impacts from this spending ripple through a variety of sectors across the regional economy, including architectural and engineering services, truck transportation services, wholesale trade, waste management, and retail services.

[14] This estimate is based on both the member survey and publicly available new sources on significant renovations projects at the member gardens.

3.4 ECONOMIC IMPACTS FROM ANCILLARY VISITOR SPENDING

In addition to their direct economic footprint, the gardens have a quantifiable economic impact through the visitor spending they attract to the region. While the visitor spending that takes place within member gardens is accounted for within the operating footprint calculated in Section 3.2, visitors attracted to the region in order to visit member gardens make a range of additional purchases on their visit. This ancillary spending impact represents another crucial contribution of member gardens to the local economy. Estimating the magnitude of ancillary spending involves both determining the magnitude and categories of visitor spending can reasonably be considered attributable to member gardens, and then determining appropriate ancillary spending estimates for those visitor types.

Regional Visitation Attributable to Gardens

Data gleaned from the visitor intercept and member surveys can be utilized to develop an estimate of the proportion of garden visitors than generate net new spending in the regional economy. Net new ancillary spending represents expenditures in the region that would not have taken place but for the presence of GPG gardens. This analysis conservatively includes only spending by out of towners as net new, since from an economic perspective local spending associated with garden trips represents an internal shift,[15] and further only includes those visitors who likely would not have come to the region absent the presence of the gardens.

Figure 3.3 below illustrates the categorization by which visitation and spending attributable to member gardens was determined. As discussed in Section 2.1, total annual attendance at member gardens is approximately 2.7 million. Among those visitors:

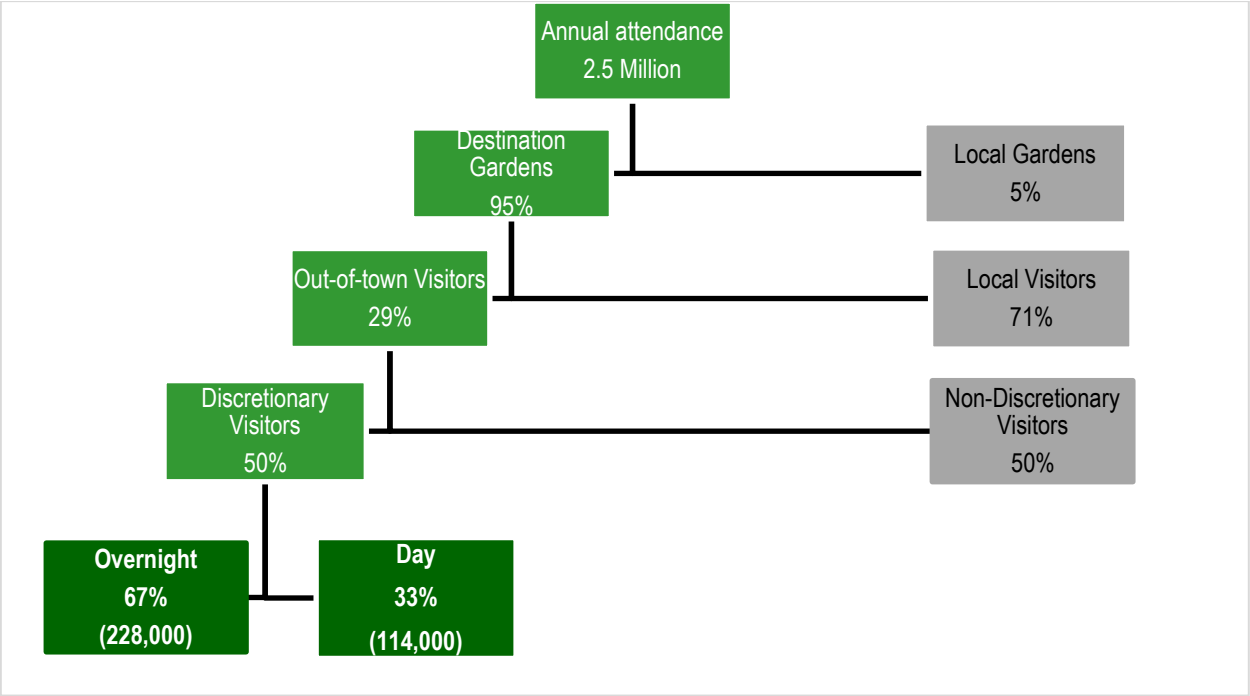
- 95 percent of attendance is represented by "destination attractions," larger gardens which have sufficient scale and notoriety to attract a mix of local, regional, national and international visitors.
    - 5 percent of attendance takes place at smaller gardens that draw a primarily or exclusively local audience. These attendees are excluded from ancillary spending estimates, as these gardens are unlikely to generate net new visitation to the region.
- 29 percent of visitation is represented by visitors from outside of the region, according to intercept survey results.
    - 71 percent of visitation is represented by locals, and is therefore excluded from net new ancillary spending estimates.
- 50 percent of out of town visitors reported in the intercept surveys that their reason for visiting the region was "vacation/getaway" or "educational/academic." These visitors are considered to be discretionary, and the gardens appear to be a key trip motivator.

[15] Internal shifting implies that absent member gardens, spending associated with these outings would be shifted to a different use within the region (i.e. another entertainment option or purchase). This approach is conservative because in practice some alternative spending would likely take place outside the region (for example, regional residents might be compelled to take more frequent trips to gardens in other regions).

- 50 percent of out of town visitors reported that their primary reason for visiting the region was "visiting friends or relatives" or "business/convention." These trips are considered non-discretionary, and these attendees are excluded from net new ancillary visitor spending because most of these visits to the region likely would still have taken place in the absence of member gardens.

- 67 percent of out of town discretionary visitors reported spending more than one day in the Philadelphia region, while 33 percent reported being day trippers, according to intercept survey data.
  - Total out of town, discretionary, overnight visitors to the region attributable to member gardens are estimated at 228,000
  - Total out of town, discretionary, day trip visitors to the region attributable to member gardens are estimated at 114,000

FIGURE 3.3 – REGIONAL VISITATION ATTRIBUTABLE TO MEMBER GARDENS



Source: GPG (2016), Econsult Solutions (2016)

Spending Profile

Based on spending patterns gleaned from the visitor intercept survey and information on typical visitor spending patterns provided by Visit Philadelphia, ESI developed estimates of the per visitor spending profiles of the day and overnight regional visitation attributable to member gardens. These per visitor estimates are then matched with the magnitude of visitation estimated above to yield an estimate of total net new ancillary visitor spending attributable to member gardens.

Spending profiles are developed separately for day and overnight visitors, which typically have different spending footprints. Visitors who stay overnight are likely to spend the more money both in total and on a per day basis, as they will incur larger accommodation expenses as well as meal and travel expenses. Although day trippers do not spend on accommodations, they do spend within the local economy on items like meals, entertainment and transportation. Daily visitor expenses for each visitor type by category are drawn from data provided by Visit Philadelphia, based on surveys of regional visitors in 2015 conducted by Longwoods International.[16]

As previously noted, it is also important to take into account that some of this visitor spending will occur at one of the GPG member gardens. When visitors purchase admission tickets, food, beverages, plants, or any other merchandise at a garden, the spending becomes gross revenue for the garden. These revenues are used to keep the gardens operating and thus were previously included in Section 3.2, and are estimated at approximately $20 per attendee based on member survey data. To avoid double counting the impact of the gardens, the estimated visitor spending must include only ancillary spending, or spending which occurs outside of the GPG member gardens. Ancillary spending for overnight visitors is estimated at $145 per day, and ancillary spending for day trippers is estimated at $36 per day, divided amongst five spending categories as shown in Table 3.4.

TABLE 3.4 – ESTIMATED DAILY ANCILLARY SPENDING PER VISITOR

Spending Category	Overnight Visitors	Day Trippers
Lodging	$65	--
Food & Beverage	$45	$22
Retail	$21	$14
Recreation	$17	$12
Transportation	$17	$8
Total Per Visitor Spending	**$165**	**$56**
Spending at garden	($20)	($20)
Total Per Visitor Ancillary Spending	**$145**	**$36**

Source: GPG (2016), VisitPhilly (2015), Econsult Solutions (2016)

Per visitor spending estimates can then be applied to the annual visitation estimates to yield an estimate of total annual ancillary spending attributable to member gardens. Ancillary spending by overnight visitors is estimated at $33 million annually, while ancillary spending by day trippers is estimated at $4 million, for a total of $37 million in annual attributable ancillary spending (see Table 3.5).

[16] Spending for overnight visitors is drawn from reported daily spending by overnight leisure visitors to Greater Philadelphia in 2015, while spending for day trippers is drawn from reported spending for all day visitors.

TABLE 3.5 – ANNUAL REGIONAL ANCILLARY VISITOR SPENDING ATTRIBUTABLE TO MEMBER GARDENS

Category	Overnight Visitors	Day Trippers	All Visitors
Annual Attributable Visitation	228,000	114,000	342,000
Lodging ($M)	$14.8	--	$18.6
Food & Beverage ($M)	$9.1	$1.9	$16.3
Retail ($M)	$3.6	$1.0	$7.2
Recreation ($M)	$1.6	$0.2	$2.6
Transportation ($M)	$3.9	$0.9	$7.2
Total Ancillary Spending ($M)	**$33.0 M**	**$4.1 M**	**$37.1 M**

Source: GPG (2016), VisitPhilly (2015), Econsult Solutions (2016)

This visitor spending approach conservatively attributes only one day's worth of a spending for out of town, overnight visitors to the region to the member garden they attended. As reported in the Section 2, total trip spending for out of town visitors surveyed in member gardens was close to $400 per trip, and trips lasted longer than one day for many visitors. In some instances, member gardens may be the main motivator for a visit, and thus in a sense responsible for all trip spending, as the trip likely would not have taken place without them, while in other cases member gardens may be a secondary rather than a focal activity (or may be the reason for the extension of a visit an extra day but perhaps not the main motivator for the initial visit).

This dynamic suggest that the more conservative approach employed is warranted. However, the high proportion of visitors who planned their visit to a member garden several days in advance and the high proportion of overnight visitors who stayed in paid accommodations, along with unique demographic profile of visitors, are all suggestive of a visitor segment that is drawn to the garden experience and is highly lucrative from a regional economic impact standpoint. Further, even in cases where gardens do not serve as a primary motivator of a visit, they may enhance both the visitor experience and the volume of activity and spending undertaken within those visits. Therefore, the contribution of garden amenities on the regional tourism industry is in practice broader than simply those trips directly motivated by member gardens.

Economic Impact

Ancillary spending, like the direct footprint of member gardens, produces indirect and induced economic impacts. However, appropriate modeling of these expenditures must take into account the difference between total sales attributable to visitors and the direct economic footprint produced by those sales. While $37 million is estimated to be directly spent annually, $30 million of that total is estimated to circulate through the local economy, with the remainder represented by "retail margins" which leak out of the local area.[17]

[17] The amount available to circulate through the local economy will be less than what the visitors to the gardens are spending, because many retail items are originally produced outside of the region, and only sold within the local economy. Impact modeling assumes that the markup on retail is what creates the impact on the local economy, and therefore drops the "wholesale" purchase from the local economic impact for certain goods. These ancillary spending totals only include the markup on retail at gasoline stations and miscellaneous retailers, which will result in the actual economic impact of the spending of these visitors.

The $30 million in modelable direct spending leads to indirect and induced expenditures of $26 million within Greater Philadelphia, for a total economic impact of $56 million (see Table 3.6). This activity supports 440 total jobs with annual earnings of $18 million.

TABLE 3.6 – ANNUAL ECONOMIC IMPACT OF ANCILLARY VISITOR SPENDING WITHIN GREATER PHILADELPHIA

Category	Annual Economic Impact
Direct Output ($M)	$30
Indirect & Induced Output ($M)	$26
Total Output ($M)	**$56**
Total Employment (FTE)	**440**
Total Earnings ($M)	**$18**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013)

3.5 TOTAL ECONOMIC AND FISCAL IMPACT

Economic Impacts

Annual economic impacts from operations can be summed with economic impacts from ancillary visitor spending to yield a total economic impact from these categories attributable to member gardens on an annual basis. Table 3.7 below shows that the **total annual economic impact** from these categories within the 11-county Philadelphia region is **$256 million**. This activity supports **1,520 jobs and $79 million in annual earnings**.

TABLE 3.7 – ANNUAL ECONOMIC IMPACT OF MEMBER GARDENS WITHIN GREATER PHILADELPHIA

Economic Impact	Operating Expenditures	Ancillary Visitor Spending	Total
Direct Output ($M)	$108	$30	$138
Indirect & Induced Output ($M)	$92	$26	$118
Total Output ($M)	**$200**	**$56**	**$256**
Total Employment (FTE)	**1,080**	**440**	**1,520**
Total Earnings ($M)	**$61**	**$18**	**$79**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013)

In addition to the annual impacts of the GPG members' operations, the gardens generated additional economic impacts through their capital investments over the last three years. As previously stated, the $116 million in construction **over the last three years had a one-time economic impact of $232 million and supported 1,460 jobs with $96 million in earnings** (see Table 3.8).

TABLE 3.8– ONE-TIME ECONOMIC IMPACT OF MEMBER GARDENS' CAPITAL INVESTMENTS WITHIN GREATER PHILADELPHIA, PAST THREE YEARS

Economic Impact	Greater Philadelphia
Direct Output ($M)	$116
Indirect & Induced Output ($M)	$116
Total Output ($M)	**$232**
Total Employment (FTE)	**1,460**
Total Earnings ($M)	**$96**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013)

Fiscal Impact

The economic activity generated by the annual operations of member gardens and the ancillary visitor spending also has tax revenue implications. Although many of the GPG members are tax exempt organizations, their collective economic footprint still generates contributions to various tax bases at the state and local levels. Most notably, the labor income generated by their direct, indirect and induced employment is a significant driver of state income tax gains. It is estimated that the Commonwealth of Pennsylvania gains $6.3 million in tax revenues as a result of the annual economic activity associated with GPG member gardens (see Table 3.9).

TABLE 3.9 – ANNUAL FISCAL IMPACT OF MEMBER GARDENS WITHIN COMMONWEALTH OF PENNSYLVANIA ($M)

Tax Type	Operating Expenditures	Ancillary Visitor Spending	Total
Income Tax	$1.6	$0.5	$2.1
Sales Tax	$1.6	$1.8	$3.4
Business Tax	$0.4	$0.4	$0.8
Total Taxes	**$3.6**	**$2.7**	**$6.3**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013), City of Philadelphia (2012), Commonwealth of Pennsylvania (2013)

Similar to annual impacts, the one-time economic activity generated by the recent construction projects also generates tax revenues for the state of Pennsylvania. It is estimated that in total, the Commonwealth of Pennsylvania gained an additional $4.8 million in tax revenues as a result of the capital investments made by the Greater Philadelphia Gardens (see Table 3.10).

TABLE 3.10 – ONE-TIME FISCAL IMPACT OF MEMBER GARDENS' CAPITAL INVESTMENTS WITHIN THE COMMONWEALTH OF PENNSYLVANIA, PAST THREE YEARS

Economic Impact	Commonwealth of Pennsylvania
Income Tax	$2.5
Sales Tax	$1.8
Business Tax	$0.5
Total Taxes	**$4.8**

Source: GPG members (2016), Econsult Solutions (2016), IMPLAN (2013), City of Philadelphia (2012), Commonwealth of Pennsylvania (2013)

It should be noted that gardens have considerable tax implications for local municipalities and school districts. These government entities are separate and distinct from the Commonwealth of Pennsylvania, and therefore such impacts are additive to the state fiscal impacts estimated above.

Each local tax code is different, and a rigorous analysis of total impacts is outside of the scope of this study. However, the same increases in taxable economic activity that generate revenue for the state are often taxed at the local level, through earned income taxes present in many municipalities as well as local sales and business taxes that are more prevalent in larger jurisdictions like Philadelphia. In addition, as described in Section 1.3, gardens are an important aesthetic amenity with positive impacts on nearby property values. Since property taxes represent the primary revenue source for most municipalities and school districts, these value increases have important revenue implications for local governments, increasing revenue without requiring increases in tax rates.

It is also important to re-iterate, as discussed in Section 1.3, that these quantifiable impacts are just a sub-set of the full range of economic impacts associated with member gardens. For many members, gardens are not separable from larger institutions, and therefore are excluded from quantification in this analysis, but nonetheless play an important role in enhancing the attractiveness of these regional anchor institutions (like museums, zoos and colleges). Further, amenities like gardens have important positive impacts on property values, the quantification of which is outside the scope of this study. Finally, the impact of gardens on the regional tourism economy are broader than those captured in the calculation of attributable ancillary visitor spending alone, since gardens contribute to the quality of the visitor experience and the volume of activity and spending taking place even in instances where they are not the primary trip motivator.

APPENDIX A – GREATER PHILADELPHIA GARDEN MEMBERS

Organization	City	State
Ambler Arboretum of Temple University	Ambler	PA
Arboretum at the Barnes Foundation	Merion	PA
Awbury Arboretum	Philadelphia	PA
The Barton Arboretum and Nature Preserve of Medford Leas	Medford	NJ
Bartram's Garden	Philadelphia	PA
Bowman's Hill Wildflower Preserve	New Hope	PA
Brandywine River Museum	Chadds Ford	PA
Cabrini College Campus	Radnor	PA
Camden Children's Garden	Camden	NJ
Centennial Arboretum Horticultural Center	Philadelphia	PA
Chanticleer	Wayne	PA
Hagley Museum and Library	Wilmington	DE
Haverford College Arboretum	Haverford	PA
Henry Botanic Garden	Gladwyne	PA
Henry Schmieder Arboretum	Doylestown	PA
The Highlands Mansion and Gardens	Fort Washington	PA
Hortulus Farm Garden & Nursery	Wrightstown	PA
Jenkins Arboretum & Gardens	Devon	PA
Longwood Gardens	Kennett Square	PA
Meadowbrook Farm	Jenkintown	PA
The Gardens at Mill Fleurs	Point Pleasant	PA
Morris Arboretum of the University of Pennsylvania	Philadelphia	PA
Mt. Cuba Center	Hockessin	DE
Natural Lands Trust	Media	PA
Nemours Mansion & Gardens	Wilmington	DE
Pennsylvania Horticultural Society	Philadelphia	PA
The Philadelphia Zoo	Philadelphia	PA
Scott Arboretum of Swarthmore College	Swarthmore	PA
Shofuso Japanese House & Garden	Philadelphia	PA
Tyler Arboretum	Media	PA
Tyler Formal Gardens at Bucks County Community College	Newtown	PA
Welkinweir	Pottstown	PA
Winterthur	Winterthur	DE
The Woodlands	Philadelphia	PA
Wyck	Philadelphia	PA

APPENDIX B – VISITORS SURVEY

1. Where are you from?
    - Philadelphia region (within 1 hour)
    - Outside of region
    - Zip Code (if local)

2. What state of county are you from? (skip if local)

3. How many days are you in the Philadelphia area? (skip if local)

4. What is your primary reason for visiting the Philadelphia area? (skip if local)
    - Business/Convention
    - Educational/Academic
    - Visiting Friends or Relatives
    - Vacation/Getaway
    - Other (please specify)

5. Where are you staying during your visit to the Philadelphia area? (skip if local)
    - Hotel
    - Bed and Breakfast
    - AirBnB
    - With friends
    - With family

6. How much per person do you expect to spend on your visit to the Philadelphia area? (skip if local)

7. How many people are in your group today?
    - Total
    - # of Children under 18

8. What are you spending money on during your visit to the garden today? (check all that apply)
    - Admission
    - Parking
    - Program
    - Food
    - Gift shop purchases
    - Other (please specify)

9. What else are you spending money on during your day out today? (check all that apply)
    - Meal before or after garden visit
    - Public Transit
    - Other Entertainment
    - Other (please specify)

10. How much do you estimate to spend, total, on your day out today?

11. How did you arrive here today?
    - Car
    - Tour Bus
    - Public Transit
    - Walk
    - Other (please specify)

12. How did you find out about this garden? (check all that apply)
    - Online Search
    - Social Media
    - Greater Philadelphia Gardens Website
    - Other website
    - Print Ad
    - Hotel/Convention/Tour
    - Word-of-mouth
    - In the area/noticed garden
    - Other (please specify)

13. What were your main reasons for visiting this garden today? (check all that apply)
    - General horticulture
    - Special program
    - To relax
    - To visit friends and family
    - To see exhibit
    - Someone recommended it
    - To observe wildlife
    - To exercise
    - Family Outing

14. Are you visiting for a special event today?
    - No
    - Yes
    - If yes, what event?

15. When did you decide to visit this institution?
    - Today
    - This week
    - 1 week- 1 month ago
    - > 1 month ago

16. Approximately how much time are you spending here today?
    - Less than 1 hour
    - 1-2 hours
    - 2-4 hours
    - 4-6 hours
    - 6+ hours

17. When in the initial stages of planning to visit a garden, would you prefer to: (check all that apply)
    - Look online (including website and social media accounts)
    - Pick up or order a magazine/brochure
    - Speak to a staff member at the garden
    - Other (please specify)

18. What phrase best describes Philadelphia- area gardens for you?
    - Birthplace of Horticulture
    - America's Garden Capital
    - Great Gardens Live Here

19. Do you plan to visit other area gardens in the future?
    - No
    - Yes
    - If yes, which gardens?

20. What would make you more likely to visit additional gardens in the region? [Check all that apply]
    - A reference booklet describing area gardens
    - A special membership or garden passport that allowed admittance into multiple gardens
    - Multiple-site garden festivals or special events that took place over several days or weeks days
    - Other (please specify)

21. How much would you estimate that you spend on activities and items related to gardening in a year (including gardening supplies, landscaping, admissions and memberships, and flower shows)?
    - <$100
    - $100-$250
    - $250-$500
    - $500-$1000
    - $1000+

Demographic Questions

1. What is your age?
    - Under 25
    - 25-34
    - 35-44
    - 45-54
    - 55-64
    - 65+
    - Prefer not to answer

2. Which of the following best captures your annual household income in 2015?
    - Under $25,000
    - $25,000-$50,000
    - $50,000-$100,000
    - $100,000-$150,000
    - $150,000-$250,000
    - $250,000 or more
    - Prefer not to answer

3. Which of the following best describes your current status?
    - Employed, full-time
    - Employed, part-time
    - Retired
    - Student
    - Prefer not to answer
    - Other (please specify)

4. What is your educational level?
    - High school diploma or less
    - Some college, no degree
    - Associate's Degree
    - Bachelor's Degree
    - Graduate or Professional Degree
    - Prefer not to answer

APPENDIX C – MEMBER SURVEY

A. *Annual Expenditures*

For the most recent fiscal/calendar year available, please provide the following information for all questions that are relevant to your garden.

- Total annual budget (non-capital for the most recent calendar/fiscal year available ($)

- Breakdown of budget by category
  - Payroll costs
  - Operations costs
  - Professional fees
  - Other non-capital costs
  - If other costs, please describe

- Employees and volunteers
  - Number of employees
  - FTE estimate if available
  - Number of regular volunteers
  - Number of volunteer hours annually

- Total dollar value, by type, of direct payments to state and local governments
  - Total
  - Tax payments
  - Fees
  - Any PILOT arrangement

- Capital improvement projects (last three years)
  - The total amount spent on capital projects
  - Explanation of capital projections

B. *Annual Revenue*

For the most recent fiscal/calendar year available, please provide the following information for all questions that are relevant to your garden.

- Total earned revenue

- Breakdown of earned revenue by source
  - Admissions
  - Gift shop purchases
  - Food
  - Membership
  - Education and programs
  - Wedding / private event rentals

  - Plant sales
  - Other
  - If other, please describe

- Total amount of grant funding your garden received in the last three calendar/fiscal years

- Breakdown of other revenue by source
  - Individual donors
  - Non-event rentals
  - Trust income

C. *Visitor Information*

For the most recent calendar/fiscal year available, please provide the following information on visitors to your garden:

- Estimated annual attendance most recent calendar year
  - Total estimated attendance
  - Please describe the method used to quantify attendance
  - Using your best guess, what percentages of visitors to your garden live more than an hour away from your location

- Group tours
  - Total number of group tours
  - Average size of tour groups

- Symposiums
  - Number of symposiums held at your garden
  - Total number of attendees for all symposiums
  - Using your best guess, the percentage of symposium attendees who live more than an hour away from your garden

- Notable exhibitions / instillations in recent years
  - Please list notable exhibitions / instillations
  - Please give your best estimate to the percent of increase in garden visitation during notable exhibitions and instillations relative to typical visitation levels
  - Using your best guess, what percentage of visitors to your garden during notable exhibitions and installations live more than an hour away from your job location

D. *Special Programming and Social Impact*

For the most recent fiscal/calendar year available, please provide information regarding (if applicable:

- Number of annual events and special exhibits (distinct from event rentals) taking place at your garden, by event type:

  - Lectures
  - Educational programs
  - Conferences
  - Public programs
  - Festivals
  - Plant sales
  - Holiday displays
  - Other
  - If other, please describe

- Number of school groups that visited your garden

- Number of total school group attendees (individuals)

- Please list the number and type of events and services provided by your garden off-site, by type
  - Lectures by garden staff
  - Educational events
  - Roadshows
  - Consulting projects
  - Please list the type of places where off-site events / services are provided (schools, libraries, non-profits, etc.)

- Please note any public recognition your garden has received for your educational and community programs

- Please describe any other noteworthy community programs not reference above

APPENDIX D – ECONOMIC AND FISCAL IMPACT MODEL THEORY

D.1 Overview

Economic impact estimates are generated by utilizing **input-output models** to translate an initial amount of direct economic activity into the total amount of economic activity that it supports, which includes multiple waves of spillover impacts generated by spending on goods and services and by spending of labor income by employees. This section summarizes the methodologies and tools used to construct, use, and interpret the input-output models needed to estimate Greater Philadelphia Gardens' economic impact

D.2 Input-Output Model Theory

In an inter-connected economy, every dollar spent generates two spillover impacts:

- First, some amount of the proportion of that expenditure that goes to the purchase of goods and services gets circulated back into an economy when those goods and services are purchased from local vendors. This represents what is called the "indirect effect," and reflects the fact that local purchases of goods and services support local vendors, who in turn require additional purchasing with their own set of vendors.

- Second, some amount of the proportion of that expenditure that goes to labor income gets circulated back into an economy when those employees spend some of their earnings on various goods and services. This represents what is called the "induced effect," and reflects the fact that some of those goods and services will be purchased from local vendors, further stimulating a local economy.

The role of input-output models is to determine the linkages across industries in order to model out the magnitude and composition of spillover impact to all industries of a dollar spent in any one industry. Thus, the total economic impact of Greater Philadelphia Gardens' institutions is the sum of the direct economic footprint plus the indirect and induced effects generated by that direct footprint.

D.3 Input-Output Model Mechanics

To model the impacts resulting from the direct expenditures generated by Greater Philadelphia Gardens in Philadelphia, PA, Econsult Solutions, Inc. developed a customized economic impact model using the **IMPLAN** input/output modeling system. IMPLAN represents an industry standard approach to assess the economic and job creation impacts of economic development projects, the creation of new businesses, and public policy changes.

IMPLAN is one of several popular choices for regional input-output modeling. Each system has its own nuances in establishing proper location coefficients. IMPLAN uses a location quotient to determine its regional purchase coefficient (RPC). This represents the proportion of demand for a good that is filled locally; this assessment helps determine the multiplier for the localized region. Additionally, IMPLAN also accounts for inter-institutional transfers (e.g. firms to households, households to the government) through its Social Account Matrix (SAM) multipliers. IMPLAN takes the multipliers and divides them into 440 industry categories in accordance to the North American Industrial Classification System (NAICS) codes.

These economic impacts in turn produce one-time or ongoing increases in various tax bases, which yield temporary or permanent increases in various tax revenues. To estimate these increases, Econsult Solutions, Inc. created a **fiscal impact model** to translate total economic impacts into their commensurate tax revenue gains.

D.4 Employment and Wages Supported

IMPLAN estimates the direct jobs employed by the project or activity being modeled. These estimated direct jobs will be displayed in the report unless the number of jobs are known beforehand by the project's owner, and if provided, will be noted in the body of the report. The project/activity expenditures also support induced and indirect jobs. These are jobs not directly employed by the project, but instead are employees who work for the project's vendors and employees who work at businesses frequented by those employees directly employed by the project. We report the total jobs supported by the project, therefore all direct, indirect, and induced jobs. These jobs are a mix of full-time and part-time jobs.

IMPLAN generates job estimates based on the term job-years, or how many jobs will be supported each year. For instance, if a construction project takes two years, and IMPLAN estimates there are 100 employees, or more correctly "job-years" supported, over two years, that represents 50 jobs each year. The 50 jobs represent the annualized number of jobs supported by the construction project. The job can be the same each year such as the coffee barista serving the directly employed construction workers or different if in the first year of the project a welder is needed and in the second year of the project an electrician is required.

The total income is for all direct, indirect and induced jobs. It includes proprietor income, wages, and all benefits. Since many projects/events require the employment sourced from multiple industries, the average wages paid will be different per industry. Therefore, it is not correct to divide the total labor income and divide it by the total job-years to derive an average employee compensation estimate.

D.5 Fiscal Impacts

The economic impacts described above in turn produce one-time or ongoing increases in various tax bases, which yield temporary or permanent increases in various tax revenues. The

IMPLAN model does provide a rough estimate of the fiscal impact of this increase activity on state and local governments. To develop more precise estimates in certain categories, ESI has developed a custom fiscal model for the Commonwealth of Pennsylvania that translates total economic impacts (as estimated by the IMPLAN model described above) into their commensurate tax revenue gains for the Commonwealth by calculating the effective tax rate on various types of economic activity.