ASTHO Tracking Fellowship Program
Cincinnati Health Department

Environmental Public Health Tracking
ASTHO Fellowship Report

Submitted by
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Submitted to
Association of State and Territorial Health Officials
Environmental Public Health Tracking: State to State Peer Fellowship Program
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I. Introduction and Background

The Cincinnati Health Department (CHD) is an organization dedicated to improving the health of the Cincinnati community and is responsible for the promotion, protection, and maintenance of public health in the City of Cincinnati. Environmental health, public health and clinical care services are integrated in the Cincinnati Health Department, under the leadership of the Health Commissioner, who has expressed strong support for submission of this fellowship program. The Cincinnati Health Department’s (CHD) mission is to work for the health and wellness of Cincinnati citizens, employing methods that include surveillance, assessment, disease prevention, health education and assuring access to public health services. The CHD is committed to providing programs and services, facilitating partnerships, promoting wellness and advocating prudent, ethical and effective public health policies.

The CHD is a multifaceted city department with 435 employees which provides public health services including, Environmental Services (Food Inspection, Vector Control, Pool Inspections, Rabies investigation, control of household nuisances), and child health, Women, Infants and Children (WIC) and Bureau of Children with Medical Handicaps (BCMH)), Primary Care (5 primary health care centers), Laboratory, Immunization, School Based Health, Public Health Nursing, Home Health Nursing, TB control, Lead Poisoning Screening/Prevention/Control, Family Planning, HIV/AIDS Counseling, STD Control, Dental Services, Maternal Child Health, Pharmacy, Nutrition, Emergency Preparedness, Epidemiology, Vision and Hearing Screening, and Vital Records. Users of the primary health care services provided by the mobile Homeless Van, 6 primary health care centers, dental services, pharmacy and home health together total 76,000 users annually. The number of patients that visit CHD Clinics is 35,000, of which 21,700 patients (62%) are uninsured.

The CHD’s principal values include: equity in health service delivery and qualitative improvements in the health and social well-being of communities, social justice and environmental justice. The CHD is governed by a nine member Board appointed by the City Manager and meets on a monthly basis.

II. Statement/Perception of Need

The CHD is extremely interested in building our local environmental public health tracking capacity in the areas of health outcomes, environmental hazards and human exposures by collaborating with the CDC National Environmental Health Tracking Program as well as with partners at the city, county, state, and national level. CHD commits to adopting the use of existing Tracking/PHIN standards and specifications referred to in recipient activities, and development of specifications with environmental health tracking partners and standards-setting organizations. This effort will help obtain integrated health and environmental data that will present the data in a standardized formation that will allow it to be used in support of actions that improve the health for the community.

According to population projections developed by the Mayor’s Office, the total population of Cincinnati in 2007 was 378,259 people occupying over 77.2 square miles. According to the 2000 Census, Whites comprise the majority of City population at nearly 53%, while African-Americans made up 43% and Cincinnati’s Hispanic and Latino population make up 2% of the total population. Appalachian whites (which comprise 25% of the population of Cincinnati) are classified as a minority group in Ohio.
The 2000 Census revealed that the City’s median household income was $29,493 in 1999. In 2008 the estimated median household income was $33,524. Poverty still plagues a large portion of Cincinnati’s population. In 2000, 69,722 persons and 13,227 families were living below the poverty line. Of all groups (white, African American, Hispanic), African Americans are most likely to be living in poverty. In 2007, the U.S. Census estimated Cincinnati’s poverty rate at 27.8% which was more than twice the national average. In 2008, the American Community Survey ranked Cincinnati the seventh poorest city out of 75 cities surveyed with 25.1% of the residents living in poverty. Some of the adverse health impacts of living in poverty include: poor nutrition, inadequate access to preventive health and pre-natal care, housing that is infested with rodents and insects, housing without smoke detectors, and housing with lead hazards. Cincinnati’s central city has one of the lowest home ownership rates of comparably sized cities in the country with a rate of 34%. The housing stock is old with 93% of the housing built prior to 1980. Lead hazards from lead-based paint can be presumed to be present in the majority of the housing units. Based solely on the age of the housing, 37,972 occupied rental units and 39,090 owner-occupied dwelling units have a high potential for lead based paint hazards.

The City of Cincinnati’s infant mortality rate is as high as some developing nations. In 2006 the City infant mortality rate (IMR) was 13.5 infant deaths per 1,000 live births compared to 6.4 for the U.S., 7.7 for Ohio, and 10.9 for Hamilton County (2007). The IMR is widely thought to reflect the overall health of a community as an indicator of a lack of education, poor hygiene, poor nutrition, lack of access to healthcare and other underlying health and social issues. In 2008, Cincinnati was ranked the 8th most polluted city for Year-Round Particle Pollution by the American Lung Association. This coincides with resident perceptions that Cincinnati has poor air quality which results in a high incidence of asthma. In the 2004 Hamilton County Profile heart disease was the number one cause of death, immediately followed by cancer, stroke, and chronic lower respiratory disease respectively. Diabetes ranked seventh as a cause of death. In telephone interviews for the 2005 Greater Cincinnati Community Health Status Survey 32% of respondents reported having hypertension, 29% high cholesterol or triglyceride levels, 10% diabetes, 5% chronic lung disease, 6% cancer and 2% history of stroke. County rates for cancer and chronic lower respiratory disease all exceeded national rates. Particularly significant was the age adjusted mortality rate of 45.2 per 100,000 for chronic lower respiratory disease, the county rate far exceeding the national rate of 24.5 and state rate of 29.7.

The newly passed City of Cincinnati Environmental Justice (EJ) Ordinance recognizes that the local governments must demonstrate leadership to address Environmental Justice concerns of their citizens and must enhance opportunities for meaningful public participation in all government decisions that have environmental and health impacts. The focus of the EJ Ordinance is the regulatory process for industrial activities, as an effective means to protect individuals from the material, cumulative and adverse impact of pollutants.

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III. Tracking Activities

Small Project: Overview
The Centers for Disease Control and Prevention National Environmental Public Health Tracking Program was established in 2003. The goal of the tracking program is to collect environmental, human exposure and health data such as asthma, air pollution, and childhood lead poisoning for the purposes of integration, analysis, interpretation, and dissemination. Participating sites include California, Colorado, Connecticut, Florida, Maine, Maryland, Massachusetts, Minnesota, Missouri, New Hampshire, New Jersey, New Mexico, New York, New York City, Oregon, Pennsylvania, South Carolina, Utah, Washington, and Wisconsin. Although, Cincinnati, Ohio was not funded in the last round we were very thrilled to be selected as an ASTHO fellow. As an ASTHO fellow, the Cincinnati Health Department agreed to complete a pilot project that would display vital statistics data.

Summary and Specific aims
The CHD pilot project will encourage data sharing between the CHD Vital Records Department, City of Cincinnati Information Technology Centers, and the Ohio Department of Health by working with internal programs as well as external database managers to reformat the data for presentation through the NEPHT portals.

Benefits an significance to his or her state and EPHTN
The long term goal of the project is to compare maternal, child health, vital statistics and chronic disease data between neighborhoods or neighborhood groupings, and identify patterns ascribed to infant mortality, cancer, asthma and other chronic diseases. This project may form the basis for linking geographic data on exposures to environmental hazards to maternal, child health, and chronic disease data and for encouraging data sharing among data stewards by working with internal programs as well as external database managers to reformat the data for presentation through the NEPHT portals. The project aims to ensure equity in health service delivery and equitable protection of the Cincinnati population.

Research design and Methods
The Environmental Public Health Tracking committee met weekly to discuss tracking activities. The pilot tracking project activities included:
1. Evaluating the CHD database
2. Assessing Data Building, Sharing and Confidentiality
3. Researching Legal Aspects including Statutes and/or Rules
4. Analyzing Compatibility of Data with the National Environmental Public Health Tracking website

In addition to completing the tracking activities, members of the EPHT committee visited the host site and attended the National Environmental Public Health Tracking Conference in New York City.

Key Personnel
The Environmental Public Health Tracking committee consisted of the following:
1. Dr. Jones, Cincinnati Health Department Assistant Health Commissioner
2. Tunu Kinebrew, Cincinnati Health Department Vital Statistics Coordinator
3. Sean Ware, Regional Computer Center Computer Analyst
4. LiAnne Howard, Cincinnati Health Department Senior Administrative Specialist - Community Planning and Evaluation
5. Denisha Garland, Cincinnati Health Department Public Health Educator

Descriptions of each program are provided below.

Community Health and Environmental Services

The Community Health Services Division is responsible for Environmental Services including Food Service, Solid Waste, Vector Control, Animal Bites, Household Sewage, Swimming Pool Inspection, Environmental Hygiene, Nuisance Abatement, and Litter Control. The Division also has responsibility for the Health Promotion Program/Worksite Wellness Program, Planning and Evaluation, the Public Employees Assistance Program (PEAP), and the Lead Prevention and Elimination Programs.

The Community Health and Environmental Services Division, is charged with protecting the public health through inspections, monitoring and enforcing abatement of conditions potentially harmful to the public health.

Vital Statistics (Ohio and Cincinnati)

The National Vital Statistics System is the oldest and most successful example of intergovernmental data sharing in Public Health and the shared relationships, standards, and procedures form the mechanism by which NCHS collects and disseminates the Nation's official vital statistics. These data are provided through contracts between NCHS and vital registration systems operated in the various state jurisdictions legally responsible for the registration of vital events – births, deaths and fetal deaths.

The legal records such as birth and death records are collected in local cities/counties and submitted to the Ohio Department of Health, Division of Vital Statistics. Division of Vital Statistics is the data source for many important statistical measures used in public health. These indicators track Ohioans’ health and are used locally and nationally for planning and community analysis. Some examples of the data collected from birth and death records are the following.

- Birth statistical information for Ohio are tabulated by age of mother, birth weights, prenatal care timing, and other maternal and child characteristics.
- Mortality information from death records for Ohio are tabulated by age, race and gender of decedent and by causes of death.
- Statistical information about pregnancy for Ohio and counties are comprised of births, induced terminations, and fetal losses, and are tabulated by age.

Information Technology Capacity

The City of Cincinnati employs the Regional Computer Center. Founded in 1967, the Regional Computer Center (RCC) was formed by an agreement between the City of Cincinnati and Hamilton County, along with a large number of law enforcement agencies in the County, to service the information technology needs of their various governmental functions. This concept of sharing data and resources between independent government entities is reflected in the mission statement for the RCC: The mission of the Regional Computer Center is to provide information technology solutions that increase the business effectiveness of local government and law enforcement agencies, and their customers, in the Hamilton County region. The RCC is
composed of two relevant information technology systems City County Information Systems (CITCO) and the Cincinnati Area Geographic Information System (CAGIS)

**CITCO**

CITCO systems provide technology solutions for the City of Cincinnati. CITCO staff is responsible for the support of City enterprise systems, including the City's financial and human resource systems, and the City's internet (www.Cincinnati-oh.gov) and intranet deployments. CITCO is also responsible for the overall management of the City's wide area network, including defining security rules and roles for its deployment, as well as establishing guidelines for local area network deployments. CITCO’s vision is to be the recognized expert in applying information systems to local government. CITCO also provides enterprise system administration for various hardware platforms; software maintenance for production application systems; administration and support of computer-based security software; computer scheduling and operations; development and implementation of general purpose utility software; production job setup, quality control and report distribution; data control; data base administration activities for both mainframe proprietary and Oracle data base environments; and disaster recovery planning and testing.

CITCO provides information technology consulting and services to City and County clients in the following areas:
- Network Design, Management, & Installation
- Enterprise E-mail (including Blackberry Enterprise Server)
- Help Desk
- Server Operations and Administration
- Database Administration
- Application Support, Integration, & Development
- Enterprise Anti-Virus Support

**CAGIS**

The mission of CAGIS is to create a revolutionary computerized information sharing system that enables the fundamental transformation of government and utility service management and delivery. In 1995 CAGIS established the foundation for automating the functions of government and utilities whose activities create the inventories of sewers, land records, water, drainage, electrical systems, streets, right of way, etc. supporting the community. Having a real-time availability of the graphic and alpha-numeric inventories has been demonstrated as the strategy upon which major cost improvements in line department operations are based.

CAGIS is a consortium of the land and infrastructure agencies in the City of Cincinnati, Hamilton County, Cincinnati Bell Telephone and Cincinnati Gas & Electric. The specific departments served within the City of Cincinnati are: Health Department, Planning, Public Works, Building Inspections, Water Works, Metropolitan Sewer District, Storm water Management Utility, Real Estate, Park Commission, Recreation, Economic Development, Neighborhood Services, Office of Environmental Management, Economic Development, Fire Department, and Public Safety. The departments served within Hamilton County are: Regional Planning, Rural Zoning, Building Inspections, Public Works, Hamilton County Engineer, Park Commission, General Health District, Soil and Water Conservation, Emergency Response, and Hamilton County Communications. Any organizational component of the City, County, or private utility consortium enterprise members is eligible to receive CAGIS services.
CAGIS has provided support to the City of Cincinnati by automating and making available online searchable data on inspections by city health and buildings inspectors. The Cincinnati Health Department has already automated many of our environmental health functions, including Litter Control, Food Service Organization licensing inspections, Food Service Organization complaints, and indoor housing nuisance complaints (rodents, insects, mold, unsanitary living conditions, inadequate plumbing, inadequate heating, and mold). CHD and CAGIS have finished the automation for the technical environmental program (pool inspections, private sewage systems, rodents in the outdoor environment, rabies, etc), and has automated the lead program database on properties with lead hazards and status of remediation and enforcement activities.

**Steps in Project Timeline**

**Evaluate CHD Database and visit host tracking state: January, 2011 – March, 2011**

After visiting a host tracking state approved by the Health Commissioner to acquire a better understanding of the tracking portal, the CHD will first assess the existing Vital Records data system. An inventory of maternal and child health, and chronic disease data will be collected and filtered by RCC. Some examples of the information that will be addressed are listed below.

1. Total number of births
2. Total number of births of Cincinnati Residents
3. Total number of births for Kentucky, Indiana, and for country resident’s
4. Births/1,000 (fertility rate)
5. Mother’s over the age of 40 years old
6. Teen mother’s ages 15-19
7. Total number of multiple births
8. Total number of births with prenatal care
9. Total number of births with father’s on the certificate
10. Total number of our facility births comparing the last three years
11. Multiple births compared to the neighborhoods
12. Low birth weight < 2500 grams by neighborhood and income
13. Low birth weight by race/ethnicity
14. Low birth weight by trimester
15. Low birth weight by mother’s age (14-19, 20-39, 40+)
16. Babies gestational age by mother’s age (14-19, 20-39, 40+)
17. Babies gestational age by neighborhood
18. Mother’s first birth by mother’s age (14-19, 20-39, 40+)
19. Multiple births
20. % mothers smoking, using alcohol
21. Child spacing
22. Educational attainment of the mother and birth characteristic (see below)
23. Smoked during pregnancy
24. WIC
25. Death by cancer broken down by type

**Update:** In March, two members of the CHD EPHT committee visited New York City to gain insight on how a city tracking network was created. The New York City Health Department presented on several topics including:

- Overview of NYC BESP Tracking
• The Indicator Tool Demonstration
• The NYCCAS Community Air Study
• Demonstration of the NYC Portal
• CO and PCC Data
• NCDMS and Local Indicators for Birth Outcomes
• Secure and Non-secure Portal Access
• Metadata Creation and Tool
• Outreach Activities
• Policy Development
• Data Collection Projects (Hg, Pesticides, and Asthma)
• Lessons Learned

Although every presentation was very informative, we really appreciated the Lessons Learned session. New York City highlighted four valuable concepts that we should consider before and during creation of the portal. Specifically, they suggested that we integrate tracking into our agency’s mission, that we go for the low hanging fruit, that we build relationships around a shared vision and mutual advantage, and that we take into account the appearance of website. We also liked their quick facts section of the portal and decided to model our project portal after their design.

The Cincinnati Health Department collects data from multiple departments including environmental nuisance complaints, food inspections, and clinical lab data, acute and chronic disease data, and vital statistics data. The EPHT committee evaluated each database system to identify which data source would be the best to use for the pilot project. After visiting New York City, it was decided to further narrow the scope of the project as we recognized the benefits of low hanging fruit selection and building relationships around a shared vision and mutual advantage. Therefore only the information from birth certificates would be used in the preparation of the Cincinnati Health Departments Environmental Public Health Tracking sample portal.

Data Building, Sharing and Confidentiality, February, 2011 –April, 2011

1. **Build a Process to Share Data.** A test run of the following process will be completed. The information obtained from the State of Ohio via CHD’s Vital Records will be forwarded to CITCO which will manage the geo-coding process with CAGIS including mapping the data using census tracts. Basic data will also be presented in bar chart form comparing specific Cincinnati birth data to individual neighborhood data. This will constitute a format for presenting mapped and charted data on the portal.

2. **Create a Manual.** The Data sharing and formatted data will be documented for future replication in a manual.

**Update:** The Cincinnati Health Department created an Environmental Public Health Tracking portal based on vital statistics data. The website showcases information about the total number of births of Cincinnati residents, low birth weight data, maternal risk and health outcome data, as well as fun facts about city residents including most popular names and Cincinnati neighborhoods with the highest number of births. A manual was created to document how the portal was developed including the data management, formatting, and network access.
Legal Aspects, Statutes, or Rules

1. **Review Ohio Revised Code “Sunshine Laws” and Existing Data Sharing and Data Transfer Agreement Templates.** The Ohio Public Records laws govern the right to request a public record. These laws will be reviewed with City Law Department to uncover possible areas of confidentiality within the birth and mortality datasets.

2. **Review Existing Data Sharing and Transfer Agreement Templates.** For Non-Government and Government Academic Institution Collaboration, existing data sharing and transfer agreement templates of the State of Ohio, HIPPA, and the Cincinnati Health Department and those of New York City EPHT will be reviewed for relevance to our needs for the purpose of web portal development and data sharing requests.

**Update:** The EPHT committee consulted with Allison Davidson, City Attorney, to discuss possible legal barriers and limitations. It was determined that according to Freedom of Information Act (FOIA), Cincinnati is required to release information requested by the public. Therefore, in creating the portal we must define the difference between public and private access as well as evaluate if restrictions could be offered. Additionally, the EPHT Committee reviewed several data sharing agreements. Although, the CHD has a HIPPA data sharing agreement, the committee reviewed several others to identify the one that most suited our needs. As a result, we have decided to create a data sharing agreement form with the assistance of the City Attorney.

Compatibility of Data

1. **National Environment Public Health Compatibility Standards.** The Standards will be reviewed in detail prior to the end of the Fellowship by member representatives from CITCO, Health Promotions, Environmental Health, Planning and Evaluation and Vital Records who staff the EPHT team at the CHD. A foundational knowledge of the Standards at this early stage of development will ensure that the development of the web portal will be aligned with existing and future National EPHT efforts.

2. **Geo-Coding Datasets.** Birth and mortality datasets will be geo-coded which will require cleaning dataset addresses and other information for internal integrity.

**Update:** The EPHT committee reviewed the compatibility standards. Sean Ware, Regional Computer Center Computer Analyst concluded that the CHD has the capability to align with the CDC National Standards. The birth data for the pilot project was geo-coded with the assistance of CAGIS.

**Presentation of Data:** May 2011 – June 2011

A demonstration EPHT portal with limited datasets will be presented internally for a critical review by the Health Commissioner, Assistant Health Commissioners, and CITCO senior staff.

To view the portal, please visit
http://www.cincinnati-oh.gov/noncms/health/epht/fast_facts.cfm
After the demonstration portal is approved by the Health Department administration, then the portal can be developed in detail for roll out at a later date to be determined, to potential partners that include: The Ohio Department of Health’s Center for Public Health Statistics and Informatics (CPHSI), the regional office for the Environmental Protection Agency (EPA), local health departments in the Cincinnati metropolitan area (Hamilton County, Norwood, St. Bernard, Sharonville, Springdale), the Health Foundation of Greater Cincinnati, the Ohio Hospital Association, Children’s Hospital, the Health Alliance, Mercy Franciscan Hospital, the Xavier University Master of Health Administration Program, the Hamilton County Office of Maternal and Infant Health and Infant Mortality Reduction (OMIHIMR), the University of Cincinnati Institute for the Study of Health, the University of Cincinnati Department of Environmental Health Science, and the City of Cincinnati Planning Department. The roll out presentation for a later date will discuss the purpose of the CDC National Tracking Program, benefits of collaboration, and how we can provide formatted environmental and health data to the public for use in research and grant requests.

**Update:** The EPHT committee has presented the portal to CHD administration and plans to present it to the Board of Health. After approval from the Board of Health, the committee will present the portal to the Greater Cincinnati medical community, CHD business collaborators, and local community advocates.

**Discussion of Expected Outcome of Project**

The expected outcome of the project was to create a limited dataset demonstration web portal with a suggested format, and dataset comparisons of the City of Cincinnati as a whole, City neighborhoods and the State of Ohio. Our goal at the completion of the project was to be able to compare mortality data by chronic disease between and birth data characteristics by neighborhoods and the City as a whole. However, we learned that we really needed to streamline the project and focus on understanding internal dynamics before expanding to include external databases. Originally the fellowship was written to include data from the Cincinnati Health Department Vital Statistics Department, Hamilton County Air Quality Division, and the Ohio Department of Health Cancer Division. Upon recommendations from ASTHO we narrowed the focus to vital statistics data which included both birth and death records. But after further discussions and visiting our host site and attending the National Conference, it was found that we needed to further narrow the scope to include only birth data. While at the Conference, I attended one of each focus group session. From this experience I understood that it takes significant time to analyze every facet of the indicators as it relates to portal infrastructure and that in order to have a successful portal that will sustain, a solid vision must be sculpted from the beginning. Therefore, our limitations involved needing more resources, time, and additional information to include external collaborators.

**IV. Planned Activities**

Plans for future tracking activities include finding available funding that will assist us in further developing the web portal. From our first steps to realizing a pilot portal, and the site visit to NYC, it is apparent that significant resources will be required to meet our plan to fully develop a portal that satisfies CDC standardized data reports and facilitate the planning,
evaluation, and research activities inside of CHD and to provide the data resources for researchers, and community groups. Additionally we must create a full plan to differentiate between situations that will require secure data links as well as identify where data sharing agreements are appropriate. However, we are committed to reaching our long-term goal of having a fully operational public health tracking network and we will continue to look for funding, become increasingly more knowledgeable about tracking procedures, and network/collaborate with other agencies to provide the most robust tracking system in Ohio.

V. Conclusion

In conclusion, the Cincinnati Health Department is extremely grateful that we were allowed the opportunity to go to the National Environmental Public Health Tracking Conference as well as visit New York City. Both experiences were necessary to gain a complete understanding of the tracking program in its entirety. As we move forward we plan to apply the knowledge that we’ve learned from this experience.

VI. References/ Supporting Materials


http://www.healthyohioprogram.org/comprofiles/hamilton.pdf

VI. Budget Information

Travel

Total $1085

• Travel to host-tracking state for 3 day site visit to attain additional information related to portal development and standards, metadata creation, limitations and barriers, and marketing.
  o Plane ticket to tracking state: $500
  o Hotel Accommodations: $150/night x 3 nights = $450
  o Per Diem: $45/day x 3 = $135

1. To date ASTHO has paid for the flight and hotel accommodations for both New York City visits. ASTHO has also reimbursed for food and transportation for the New York City site visit in the amount of $230.14.

2. The total cost of food and transportation for the National Conference is 262.42
   a. Luggage Fee: $50
   b. Food: $102.42
   c. Transportation to and from the airport: $110
3. Therefore, please reimburse Denisha Garland in the amount of $262.42.

**Printing Costs for publication**

- Booklet handouts explaining the purpose of the National Tracking Program that include charts, diagrams, screen shots as well as the results of the CHD pilot project: 500 @$1.50 each = $750

  1. The Cincinnati Health Department has not presented the demonstration portal to the public yet. Therefore, we have not purchased booklets. However, we plan to present the portal in June and would still like to use the money allocated in this fellowship for such purposes.

**Hosting an in-state meeting with data stewards**

- Room: In-kind Donation from CHD
- AV Equipment: In-kind Donation from CHD
- Supplies
  - Binders, pens, pencils, paper: $50

  1. The Cincinnati Health Department has not presented the demonstration portal to the public yet. Therefore, we have not purchased binders, pens, pencils, and paper. However, we plan to present the portal in June and would still like to use the money allocated in this fellowship for such purposes.

**Hosting a teleconference**

- Teleconference to state offices and national partners: In-kind Donation from CHD

The total budget for the ASTHO Tracking Fellowship Program is $1885