

# Sustainability Impact Assessment

## Da Vinci Science City, Easton PA

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### Abstract

This analysis describes impacts to community, environment, economy, health and climate related to the construction and operation of the proposed Da Vinci Science City (DVSC) in Easton, Pennsylvania. The impacts to sustainability extend to influences from construction, building systems, food, programs and transportation of the project. Recommendations are designed to offer synergistic opportunities where DVSC or the City of Easton might work to reduce or eliminate impacts. The recommendations include, but are not limited to, improvements to downtown walkability, integration of local businesses in DVSC programming, renewable energy and building efficiency measures, environmental protection tactics and greenhouse gas management in striving for climate neutrality. The goal of this assessment was to identify the connectivity of impacts and a systems-based approach to resolving potential detriments to the sustainability of DVSC and the City of Easton as a result of this development project. It is of the utmost importance and urgency that climate change be acknowledged and combated in the building sector, and this project's expected function as a hub of education, community interaction and innovation presents an opportunity for DVSC and the City of Easton to cultivate a regulatory standard that works with and protects the local and global community.

### Objectives, Goals & Methodology

The goal for this project is to create a sustainability impact assessment for Da Vinci Science City that includes impacts to the climate, environment, community, health, and economy as a result of building systems, transportation, food, programs and operations, and construction. After preliminary research and mapping of the area, we began to create a list of possible impacts and recommendations. Through meetings with key players of the city as well as the da Vinci Science Center, we put together this report of integrated impacts, recommendations, and relationships to other aspects of city legislature. The overall goal for this project was to create a replicable framework for all future projects, specifically in the city of Easton, but eventually for all of Pennsylvania. The general framework for this type of assessment is set in the requirements for sustainability assessments in city ordinances.

### Acknowledgments

Because this project was so integrative, working together collaboratively as a group, along with key players in the city and local businesses, was key to our success in creating this report. We would like to thank Lin Erickson for her time and cooperation throughout the summer. We would also like to thank Easton Mayor Sal Panto, Rachel Hogan-Carr (Nurture Nature Center), Kate Semmens-Berti (Nurture Nature Center), Charles Elliott (Easton Planning Commission), Rep. Robert Freeman, Dan Sobrinski (WSP Group), Anna Smith (Community Action Development Corporation of Bethlehem), Dawn Hart (Easton Director of Economic Development), Tina Roseberry (Easton Director of Planning and Zoning), and Professors Mary Wilford-Hunt (Lafayette College), Karen Beck Pooley (Lehigh University), and Don Morris (Lehigh University) for their time and guidance. I would also like to thank the Environmental Initiative at Lehigh for making this project possible.

### Major Recommendations

#### Building Systems

- Conduct Green House Gas inventories, utilize efficient building strategies, and implement renewable energy systems
- Minimize water use, while maximizing use of recycled gray water, filtered wastewater, and collected rainwater
- Develop an effective recycling program and compost all food waste
- Consider building scale, the accessibility of green space, and use of low emitting materials

#### Transportation

- Develop systems of alternative transportation to mitigate increased vehicle traffic
- Potential infrastructural investments include implementation of a bike share program, electric vehicle charging stations, alleyway revitalization, wayfinding and signage

#### Food

- Serve organic, affordable, healthy, local food with nutrition facts in all food services

- Utilize reusable items, minimize packaging, and provide estimated carbon footprints of all menu items

#### Educational Programs & Operations

- Provide educational programming to teach environmental consciousness and encourage healthy activities
- Be fully accessible to all
- Strive to be symbiotic and collaborative with the local community and businesses
- Hire locally
- Consider sustainable supply chain management

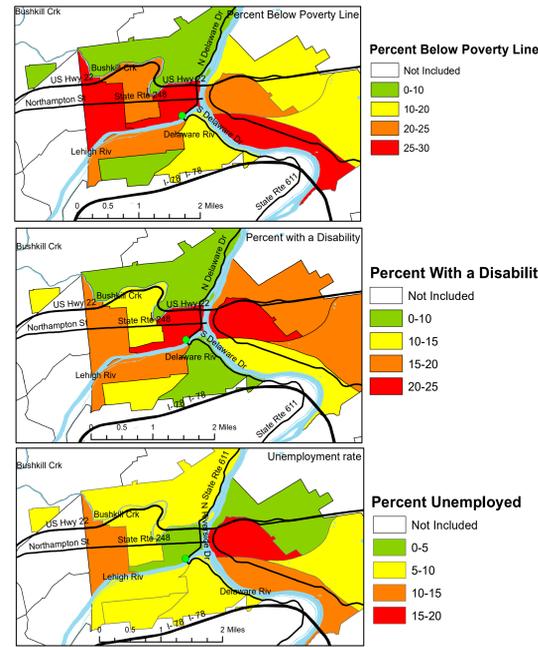
#### Construction

- Cultivate sustainability in contractor relationships
- Minimize air, noise, and light pollution from construction vehicles and site activities
- Be transparent and engage the local community in the construction process and planning
- Consider the life cycle impacts of construction related materials and processes

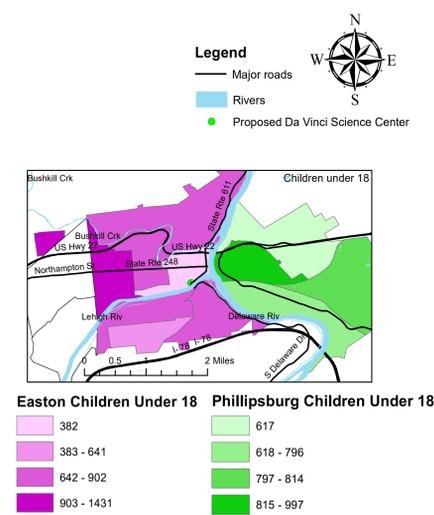
### Location

The Easton and Phillipsburg Area near the proposed location site are mapped for poverty, disability, unemployment, and number of school age children. Findings show that the immediate census tract that the facility is within has high levels of disability and poverty, as well as low numbers of school age children. These are important figures to note because of Environmental Justice concerns.

The Community Health Needs Assessment (CHNA) conducted by the Health Care Council of the Lehigh Valley in 2016 identifies the key influences of health as housing, education, air and environment, and individual behaviors. After evaluating the determinants of health, specifically in the Easton area, three of the top five health priorities included promoting healthy lifestyles, improving mental health, and improving child health.



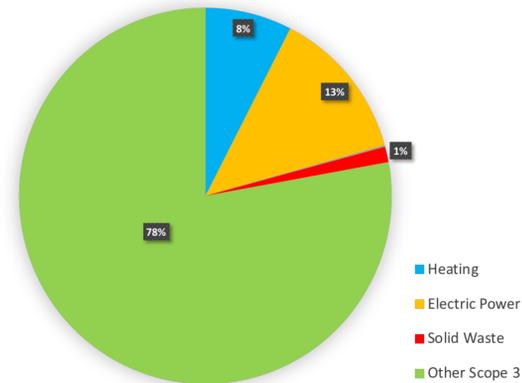
### Specified Characteristics of Easton, PA and Phillipsburg, NJ



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### Greenhouse Gas Emissions Estimate



### Requiring Sustainability Assessments in City Ordinances

- An analysis and discussion of climate change impacts related to the project construction and operation.
  - Project authorities shall develop a projected greenhouse gas inventory, including expected emissions associated with all aspects of the development proposal.
- Energy efficiency plan drafted and approved prior to construction, including possible use of renewable energy, demonstrating stricter requirements than those of ASHRAE 90.1 2016.
- Environmental considerations beyond code requirements.
  - Project authorities shall produce a projection of local pollution threats associated with all stages of development, including innovative strategies for remediation and prevention.
- A description of how any exhibits, events and/or ticketed occasions will be focused on local topics.
- Human, environment and community health impacts projected for all stages of the development project.
- Disclosure of expected commercial endorsements and anticipated local funding sources
  - Financing shall consider local funding and welfare a priority throughout the development timeline.
- Analysis of conflicting or synergistic strategies in relation to easton's comprehensive plan.
- Resilience prioritized in planning and outlining of project timeline, highlighting sustainability as a function of long term impacts.
- Commitment to report on sustainability impacts annually, including a greenhouse gas inventory.

### Impacts: .....

#### Building Systems

- Water & waste management
- Building scale
- Green space
- Energy use
- Air quality



#### Transportation

- Traffic and GHG Emissions
- Alternative Transportation
- Infrastructure



#### Food

- Production & Transportation
- Relationship with Local Restaurants
- Healthy Food Options
- Waste & Packaging



#### Programs & Operations

- Operations & Supply Chain
- Community Implications
- Education & Exhibits



#### Construction

- Planning & Administration
- Material sourcing and Disposal
- Air, Noise, & Light Pollution
- Community Impacts
- Traffic

