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Cover Page Footnote

This paper is the outcome of a collaboration completed within the 2010 fall semester studio course 1401: Looking to the Future: Design, Sustainability, and Growth in Northern Greece at Harvard University's Graduate School of Design among: a) Professors Martha Schwartz and Spiro Pollalis: instructors of the studio b) Professor Alexander Kantartzis: senior author, who assisted in the teaching of the design studio as a visiting scholar c) Nina Chase: graduate MLA II '11 student

Edessa Greenways: a land use planning tool promoting sustainable development in Northern Greece

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Introduction

Known historically as the “City of Water”, Edessa is one of many ancient small hill towns situated in a forested river valley found at the northwest part of Greece's Macedonia region. Bordering with FYROM, Albania and Bulgaria, it sits at the edge of a plateau overlooking the historically rich Plains of Hellas; atop a vast agricultural plain that extends east to Thessalonica, some 120 kilometers. Small rivers run through Edessa boasting an intricate system of waterways-canal, rivulets, and waterfalls-intertwined with small streets, walking paths and scenic overlooks. The rivers fall spectacularly 70m down from the ledge to the plain below. These waterfalls are a well-known and celebrated natural feature. The new extended municipality includes both towns of Edessa and neighboring town Anissa encompassing a rural “green corridor” agricultural area between them. It comprises the study area which extends in the valley of the River Edesseos, rising in the Agras Nissi Vritta wetlands and Lake Vegoritida. North of Edessa recreational itineraries include abundant ski resorts, ornithological reserves, lakes and archeological sites.

Unless the municipality of Edessa generates new economic growth, it will continue to lose a valuable human resource, its youth. The mayor wishes to create new hope and energy for the new municipality through economic investment and physical restructuring. Improvements here could reverberate throughout the region and potentially motivate further investment. Renovated small hotels and lodgings have emerged as outsiders begin to see the potential value of Edessa's future. Egnatia Motorway, the region's greatest infrastructural project, has already transformed travel times and accessibilities across northern Greece bringing closer the emerging economies of Western and Eastern Europe. Environmental considerations for the region are underway as two transnational agreements, the EU's NATURA Network 2000 and the RAMSAR Convention of 1971, continue to ensure the preservation and protection of sensitive ecosystems and wetlands for the foreseeable future. But this green corridor, however scenic, suffers from inattention and minimal investment.

As many regions of great natural beauty dotted with small agricultural towns across Europe continue their dependence upon cultural and ecological tourism, questions that define and frame broader issues of design, sustainability and growth in northern Greece, were considered throughout the planning process: a) How sustainable development and design issues of a region can be sensitively addressed, while developing a strategy that provides socio-cultural, economic and environmental sustainability? b) How can landscape and infrastructure design work

synergistically to address the demands of connectivity and increased capacity while also promoting a sense of identity and "placeness" for a rural region? c) How can issues of sustainability and environmental stewardship be calibrated to the specifics of local culture and geography? d) How can recent shifts in the regional geopolitical sphere be actuated to bolster tourism and economic development? e) How can strategic investments in landscape and infrastructure be leveraged to provide development opportunity for the larger region? f) Can a pronounced shift toward high-end tourism reposition the developmental future of the region? g) Can a new strategy of catalytic rural landscape and infrastructure investments improve the internal structure of the landscape and enhance its connection to the larger region?

Like many hill towns across continental Europe impacted by the shift away from small scale agricultural operations and the forces of an increasingly globalized economy, the structural relationship between town and country (in this case, the agrarian hinterlands) has profoundly changed. In the more targeted scope and scale of a municipality, fundamental questions remain: a) What uniquely defining characteristics does Edessa possess? b) What additional attributes does Edessa require? c) What actions can be taken to improve sustainable development and economic growth, while preserving natural resources, promoting cultural resources, and upgrading physical planning integration of Edessa's urban and rural Mediterranean landscape?

Literature Review

Today's fast changing society and environment has resulted in the creation of completely new landscapes and in the rapid deterioration of all previous ones, both natural and cultural. Again new landscapes have been superimposed rather than being integrated (Antrop, 2005). Rural areas, just as their urban counter parts, need to be dynamic, decentralized, recursive, data rich, responsive, parametric, alive, resilient and adaptable to change (Duff, 2010). The paper describes a landscape study based upon precedents employing approaches similar to green infrastructure and greenways projects. The greenway planning approach addresses the role of creativity, encompassing theories, principles and methods of landscape planning. Networks are systems that support functions by way of connectivity (Ahern, 2011). Linearity and connectivity have undoubtedly been applied to address formal, metaphorical and aesthetic issues in landscape design. Inventory, analysis, assessment, and identification of valuable resources, followed by analysis of distribution patterns and delineation of homogeneous areas of landscape are standard current practices in landscape and greenway design studies (Ribeiro & Barao, 2006). Landscape linkages are essential to any landscape design proposal plan as they provide space for the protection of historic sites and opportunities for recreational use (Benedict & McMahon, 2006). A continuity of landscape, as the tangible expression of the history and culture of a society, enhances the qualities of a collective identity (Egoz, 1996). An assessment of cultural/historic resources enables the delineation of spatial patterns that help to support a broad strategy for the conservation of landscape quality in its physical, historical, ecological and cultural components, both at the regional and local scales (Ribeiro, 1997). Because of their low costs and inherent adaptability, conservation plots can become the basic "building block" for creating greenways in their broadest sense: community-wide and regional greenspace networks, as envisioned in most municipal comprehensive plans (Arendt, 2004).

Goals and Objectives

Addressing the issues faced by the region, the paper investigates opportunities for connections and proposes mobility strategies for the new municipality of Edessa relative to its socio-spatial role in the larger region, its economic potential as a tourist destination, and its unique riverine geography. The viability of predominantly agrarian small towns is at the center of this investigation.

The overall objective is focusing on sustainability. Within the umbrella of sustainability at both the environmental and socio-economic levels, mobility incentives in the rural and built environment constitute the prime objective.

The paper's overarching goal is to link the communities and resources of Edessa's broader municipal region by employing an innovative greenway network and its related green infrastructure, making it an attractive and integrated place for economic growth throughout the year and a magnet for housing, cultural expression and ecologically compatible recreation and development.

Specifically the paper presents a series of clear study goals and objectives: a) to determine a development strategy for Edessa in order to re-position and re-generate the economy and population, b) to create a synergy between the towns and villages within the municipality and to capture the full potential of the river valley while protecting it for the future, c) to determine highest landscape values and best land-uses in the river area, that the greenway system will link and promote, focusing on its design and development, and d) to improve internal connections throughout the municipality of Edessa via a public open-space system linked by a greenway system.

Methods

The paper explores the research and design methods associated with physical interventions in complex space solving conditions: sites layered with multiple interventions across a long span of history that present issues of connectivity, accessibility, identity, and need for contemporary programs. It aims to apply various forms of research –historical, social, ecological, material, spatial, and technical - to the formulation of project arguments and strategies.

Emphasis was placed on exploring the relationship between documentation, analytical research and design through diverse conceptual frameworks and projective representational techniques.

Edessa can boast of: a) beautiful rural landscapes, b) natural attractions, c) competing tourism, d) agricultural economy, e) diminishing population; but Edessa needs: a) regional connections (destinations, attractions, regional connections), b) population revival (vibrant local base, respectful tourism), c) year-round attractions (summer/winter). So the main **landscape issues studied** were: a) ecological systems (geology, plant ecology, lake ecology, and region's water systems), b) physical environment (history of towns, waste, energy, transportation & connections – regional/ national/international infrastructure, recent developments - Agios Athanasios ski village, ski resort area and history), c) visual analysis (viewing areas and viewsheds in Agras wetlands and Mt. Voras), d) socio-cultural/economic environment (Who lives in the villages around Vegoritida? What is their economic base? What is their future? What changes can be

expected in the next 50 years? Agricultural practice as it exists/ future practice, tourism), and e) demographics (Edessa 18,832, Arnissa 1570, Panagitsa 1079, Agras 883, Vryta 506), f) political Landscape (issues facing Edessa/Arnissa's economic challenges, existing policies that guide development of the area, development plans for the Edessa Municipality)

A **Vision Plan** was formulated in trying to fulfill Edessa's need for better connections: "Offer the entire landscape as the attraction" through a greenway system as part of a larger scheme of existing and proposed infrastructures.

A **Strategy/Business Plan** called for this subtle green infrastructure, linking destinations with amenities. Destinations offered in this greenway system are towns, waterfalls, lake, beaches, thermal baths, and forests. Amenities offered are eating, camping, bathing/hiking, swimming, spas, skiing/hiking. Opportunities offered by the greenway system aim to: a) promote Edessa as a regional center, b) increase local connectivity, c) attract a younger population, d) improve circulation, e) highlight water systems, and f) connect to tourist circuits. Greenway system implementation can be tackled in 3 scales of connectivity: a) international (European Long Distance Footpaths E4 + E6), b) national/regional (Greek National Footpaths), d) local (lake-wetlands-canal-waterfalls). Finally a **Master Plan** included: a) Broader Connections: Thessaloniki, Edessa, Arnissa, b) Regional Greenway Connections: Edessa, Agras, Wetlands, Vryta, Nisi, Xanthogeia, New Xanthogeia, Arnissa, Panagitsa, Zervi, Black forest, Kaimaktsalan ski resort, c) Greenways End Users: environmentalists, birdwatchers, ecologists, nature lovers, outdoor recreational athletes, locals, d) Greenways Typology: agricultural, ecological (bird routes, livestock routes), historical (Via Egnatia, Xanthogeia), cultural (tractor routes), and Greenways Physical Elements: Different typologies/networks broken down into parts, typical path sections, typical entrance conditions, furniture, kiosks, interactive/interpretive signage (daily ecological information/seasonal ecological information/different programs and subprograms for different end users).

The study entitled: "CONNECTING EDESSA: A tangible landscape, a greenway network - Linking history, culture, and ecology", followed the sequence described below:

1. Viewshed Analysis: Agras wetland and Voras mountain vicinity
2. Connecting the town of Edessa with its municipality

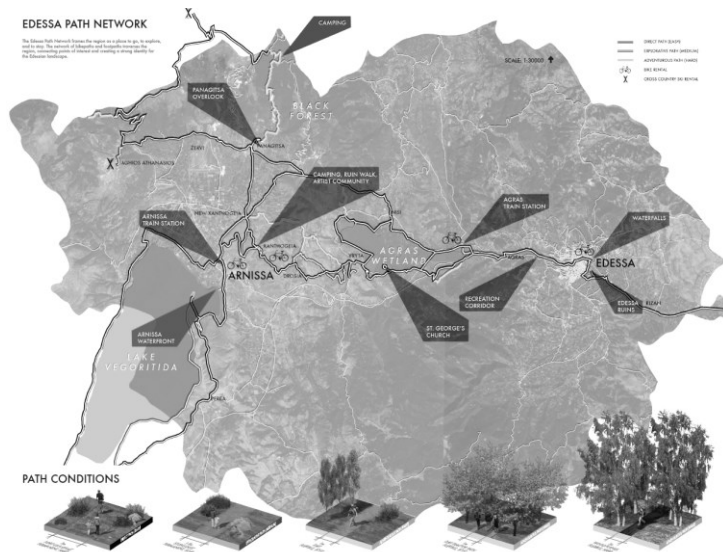


Fig 1. Edessa Greenway network and path types

3. Precedent

New England Greenway: “Make the connections”

Prague/Vienna Greenway: “Create an identity”, “Provide amenities”

Schoneberg Sudgelande Park and Agia Varvara Park: “Tread lightly”

4. Path network types: direct path (easy), explorative (medium), adventurous (hard)

5. Path network attractions: Edessa ancient ruins, Edessa waterfalls, Agras-Edessa recreational corridor, Agras train station, St. George;s church, Xanthogeia camping-ruin walk-artist community, Arnisia train station, Arnisia waterfront, Panagitsa overlook, Mt. Voras camping

6. Path network: bike and cross country ski rentals

7. Path Analysis: direct, explorative, adventurous

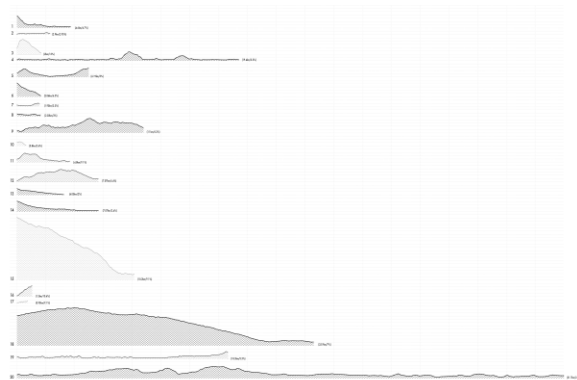


Fig 2. Path Analysis (elevational sections of each type of footpath with slope gradients, hours, and km needed to cover)

8. Path conditions: direct path (easy), explorative (medium), adventurous (hard) (including tractor dirt paths, forest wooden plank paths)

9. Path elements: observation tower, Via Egnatia wall, way-finding, accessories

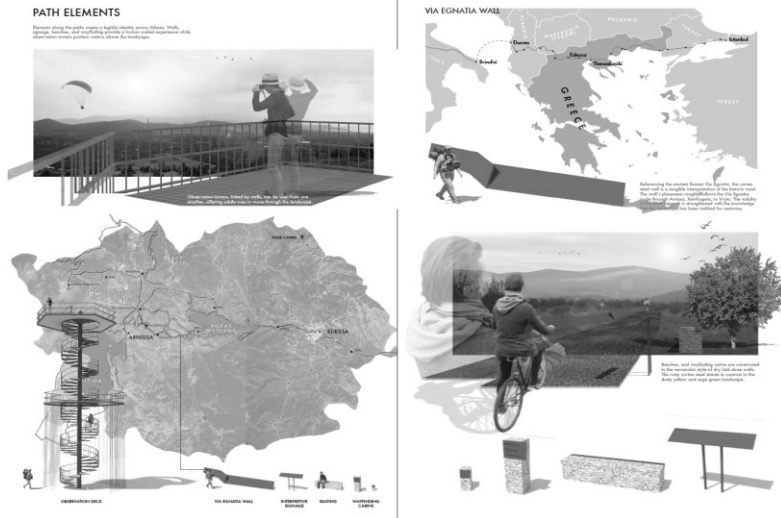


Fig 3. Path elements: observation deck, Via Egnatia wall, observation tower, bike path perspective, design elements (cairns, bench, sign)

10. Xanthogeia: camping, re-use of ruins (modern forms, interaction, lighting, hostel, camping decks, elevated walkway, artists residences, observation towers, Via Egnatia wall precedent: West 8, Wonder Holland, Rome, Parque das Ruinas, Rio de Janeiro), artists' community (artists residences: repurposed buildings, studio/living/communal space, precedent: Headlands Center for the Arts, Marin Headlands, San Fransisco)

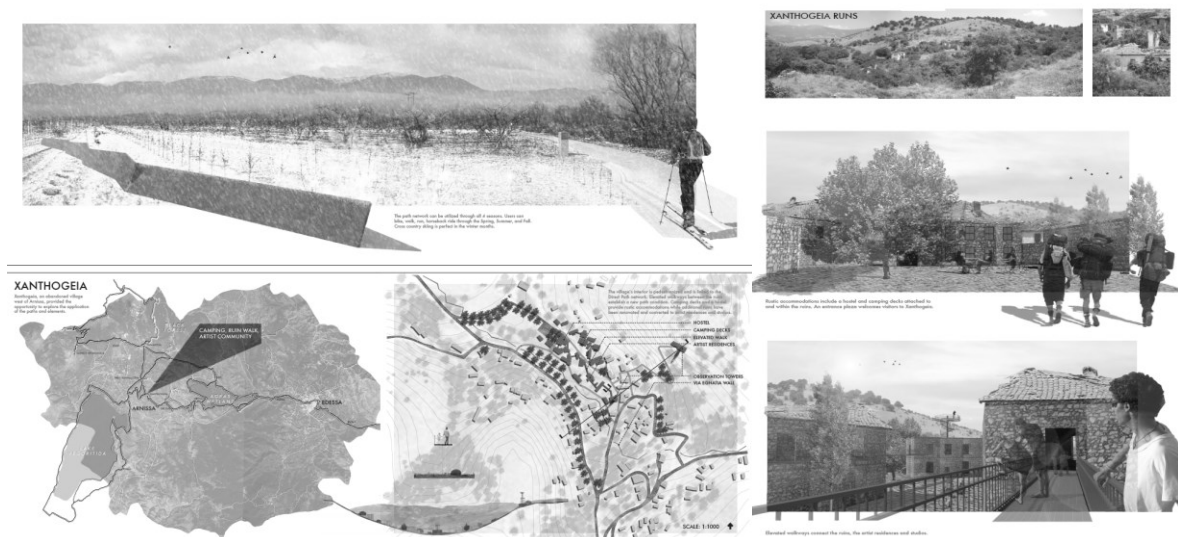


Fig.4 (left) Accessories: cross country ski path, Xanthogeia development plan
 Fig.5 (right) Xanthogeia ruins, hostel entrance and elevated walk perspectives

Results – Edessa Greenways: An overall mobility strategy

The regional development and planning of the Edessa municipality seeks to create a strong and well-connected region. It can promote economic independence and a higher quality of life based

on three **principles**: a) improving conditions and promoting safety on important links between towns and regional attractions, b) promoting the use of non-motorized sustainable transport options, such as greenways through design and long term policies, c) developing accessibility and connectivity to-and-from Lake Vegoritida.

Strategies for meeting these principles are based on the understanding and analysis of existing conditions including regional, local and site scale analysis. The analysis considers Edessa and Arnissa as the eastern and western connection hubs in the municipality and strategies improving access to these areas are part of an overall **Connections Development Strategy (CDS)**.

Pathway connections are currently not a well-defined part of the town and nature experience in the municipality of Edessa. Development of these types of connections minimize negative impacts on existing towns and agricultural lands, and allow the best opportunity for low-impact experience of nature, farms, villages, Vegoritida lake and the Black Forest.

The following recommendations are proposed:

- Establish an extensive network of footpaths that would be utilized as subtle, human scaled infrastructure within the region.
- Designate the areas of Arnissa, Panagitsa, Vryta, Nisa, Agras, the Agras Wetlands, the Wetland info center, the Black forest, the Voras mountains as significant areas of interest.
- Establish recreation and educational opportunities in conjunction with the footpaths to foster ecological and economic linkages.
- Develop footpaths in combination with such recreational activities as: hiking, horseback riding, mountain biking, cross country skiing, bird watching, and camping.
- Design way-finding signage to highlight specific ecological conditions, special habitats, and protected species in order to educate visitors.
- Provide rest stops, historical cultural sites, lodges, bed and breakfasts, rental outfits to provide necessary amenities while providing tourist destinations.
- Connect regional transportation train and bus hubs by means of footpath networks.

Bicycle connections are currently not a well-defined part of the regional or town experience, yet offer a great transportation and connectivity opportunity for the main town hubs as well as the natural areas. In combination with pathways, bicycle connections should be studied as the realistic option between towns, villages, and nature.

The following recommendations are proposed:

- Employ an extensive network of bicycle paths that link with the regional footpath network.
- Identify convenient and practical bicycle connections in addition to more leisurely routes.
- Promote bicycle use in Arnissa and Edessa and to a lesser extent the other villages, as a viable form of regional transportation, and develop strategies for bike access, through rentals or other means.
- Design maps to aid way-finding, detailed bicycle timings and use information suitable for both local residents and tourists.

Discussion and Conclusion

The focus of this greenway study lies upon the long-term improvement of quality of life and environmental quality, which is based on maintaining or improving the natural quality. The holistic basis of landscape implies the integration between natural and human aspects in a sustainable manner. Recent changes are seen as a threat to existing qualities and thus the conservation of these qualities is both an aim in itself as a means to achieve sustainability (Antrop, 2006).

Determination of what will constitute sustainability for the Municipality of Edessa in environmental / economic and social terms was guided by: a) a Development Strategy (land-use zoning, density & grain, links, infrastructure, open space), b) a Connections Development Strategy focusing on the connections offered (links, connections, green infrastructure, open space), and c) a Landscape Master Plan for the proposed Greenway System

The common thread in linking Edessa with its municipality and making the entire region an attractive, sustainable and integrated site for economic growth throughout the year, is the proposed greenway system of foot, bicycle, and equestrian paths. This greenway design project was in scope and scale, consistent with the Connections Development Plan.

Hopefully, the development of an integrated greenway planning strategy within the Municipality of Edessa will not only guarantee a sustainable future but will simultaneously place emphasis on the immediate need of its implementation at the provincial and local, physical and administrative scales.

In addition to the proposal submission to the municipality of Edessa, this landscape study presents a number of significant opportunities pertaining to the learning process and knowledge accumulated within a graduate landscape architecture studio setting that can be reinforced throughout landscape architecture schools globally.

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- a) Professors Martha Schwartz and Spiro Pollalis: instructors of the studio
- b) Professor Alexander Kantartzis: senior author, who assisted in the teaching of the design studio as a visiting scholar
- c) Nina Chase: graduate MLA II '11 student