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Contemporary Infrastructure for the Sustainable Mid-Sized City

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**Syracuse (the City) recently developed an Energy Master Plan which envisions a 31% reduction in average municipal vehicle fuel consumption, primarily through increased adoption of sustainable alternatives. The City is in a position to leverage money already invested in multi-modal infrastructure projects. There exists an opportunity to increase use of sustainable transportation alternatives by coordinating with the growing residential community, a new hotel to serve the convention center, and the ongoing emergence of the Syracuse Innovation Quarter (SyrIQ). Team personnel have expertise in planning, designing, constructing, and evaluating the performance of multi-modal transportation systems, GHG modeling, qualification, accounting, monitoring, verify, and reporting; research, development, demonstration, and deployment of clean energy innovations; entrepreneurship; and economic development.**

**background**

**FAST:Syracuse Project Objectives**

The objective of this project is to assess the feasibility of developing, implementing, growing, and promoting three urban mobility systems: (1) human-powered mobility, through enhanced walkability and bikeability; (2) sharing economy, through car- and bike-sharing; (3) public transportation services being better integrated. Envisioned innovation quarter in the downtown area will integrate these systems on three scales: (1) neighborhood, within the quarter; (2) city, between innovation nodes; (3) region, commuters from major nodes in/out of SyrIQ. The expansion of these mobility systems is anticipated to contribute to the City’s GHG emission reduction goals and accelerate the development of the SyrIQ.

**A CASE FOR NEW INFRASTRUCTURE**

Embedded within the Feasibility Assessment of Sustainable Transportation: Syracuse study’s goals is an interest in urban mobility particularly in mid-sized cities in America. Well referenced texts tend to deliberate on issues of urban infrastructure in great urban metropolises. This presumes infrastructure improvements can universally have a positive impact on urban mobility irrespective of city size. But is it possible for the prosperity of cities to be augmented by virtue of investing in policy and infrastructure for sustainable transportation through following megalopolis biased guidebooks? Vishaan Chakrabarti advocates for a more urban America in “A County of Cities”, because of their ability to foster a better environment and economy thus leading to increased social equity. He suggests that the performance of cities top that of lesser populated establishments. However, when considering the city of Syracuse we see that its performance issues may be partly responsible due to its shrinking population. If larger and denser cities can support new innovative sustainable transportation networks, how are we sure that mid-sized cities can as well?
MOBILITY PARADIGM

“Mobility has become a condition for modern life.” Contemporary society is dependent upon mobility and transportation in urban and regional conditions for work, services and increasingly leisure activities.

Transportation infrastructure is regarded as a primary measure of a city’s success. Therefore, the design of it is viewed as a prominent field for investment. Recent changes of perception, has shifted the outlook of mobility using car-centric plans and ideologies toward more sustainable and shared modes. These are regarded as more efficient in terms of air quality, health, and environmental perspective.

Regardless, of the change in perspective, the need for movement into, out of, and throughout a city is foremost. Thus design of urban infrastructure geared for performance and even experience.

shaping mobility through infrastructure

What is infrastructure?

“By definition, infrastructure sustains a condition of continuous flux: it generates an urban dynamic and stimulates movement to the limits of its own capacity or the endurance of the settlement it has helped to create. A static object that framed flows, it incessantly needs to renew itself and search for alternatives.”
THE MID-SIZED CITY

Defining the mid-sized city is essential for this investigation. City population does not only attribute to make a city 'mid-sized' or medium sized. Other aspects that may be included and to be examined are:

- Metropolitan population
- Population density
- City area
- Socio-cultural history
- Urban rates of mobility
CASE STUDY: Syracuse

Since 1950, the City of Syracuse has experienced significant population loss. This has been attributed by the suburban sprawl paradigm that continues to put pressure on transportation infrastructure. The city has recently developed and implemented projects to transform the car-centric urban landscape toward a more sustainable and human scale landscape. Some projects to highlight which emphasized on human-powered mobility and public transportation are the: Onondaga Creekwalk, Connective Corridor, Centro Transit Hub, and Intermodal Transit Center. Each of these projects can be seen as individualized efforts toward improving sustainable transportation in the city, however, there is potential for failure due to a lack of system integration. I will look into these efforts and others planned for Syracuse as one city wide project that is comprised of integrated and complimentary interventions intended to create a comprehensive multi-modal network.
Using the research from the FAST: Syracuse study, this project will push forward into developing a possible architectural application that hosts and supports new and enhanced pedestrian, bicycling, sharing economy, and public transportation infrastructure. This may be investigated through a means of designing a sustainable mobility hub for the proposed active and public transportation network of Syracuse.

This thesis will consider the proposed mobility network for Syracuse as its framework for the investigation. It will look to incorporate instances for providing links between modes of transportation, sharing economies, and travel destinations.
This thesis aims to identify the role architecture plays in urban transportation infrastructure, mainly how it can enhance, support and/or even initiate improved sustainable transportation modes and change social perceptions of travel within mid-sized cities.

To do so this project will propose an architectural intervention or perhaps set of architectural intervention tailored for mid-sized cities through an investigation of its integration with the vision of a new urban mobility network in Syracuse, NY. This investigation will suggest the need for sustainable transportation within mid-sized cities as well as the potential need for synchronization of urban planning efforts and urban design with the application of architectural mobility actuators.

**MOBILITY THROUGH ARCHITECTURE**

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The Fun Palace was not a building in any conventional sense, but was instead a socially interactive machine, highly adaptable to the shifting cultural and social conditions of its time and place. (Mathews 2005)

Multimodal transfer facilities of contemporary society have capitalized on the activity they cultivate. Especially in larger cities, these facilities are highly active and often engage in activities beyond mobility and transportation. Mobility and transportation is what brought people there, but this has been supplemented with shopping, sightseeing, meeting, entertainment, etc. At one end of the spectrum, this thesis will look into sustainable mobility but will speculate on the impacts beyond mere transportation for work. The investigation will look into the potential of mobility structures that accelerate leisure activity and a range of urban experiences specific to the mid-sized city.
Onondaga Creekwalk and maintained by the city this influential green fully paved giving the right of way to walkers and bikers. The city yearned for a segment of a multi-use path the stakeholder of the project in bridging that separation. Despite their great ability to connect to other cities, the extent of the project does not go beyond the portion of the parking area to an air landing strip. This, CENTRO offers a bus line that connects bus travelers to the mall came an effort to draw large numbers of an ambitious project led by the owner to develop an extension to the previously named Carousel Center. In the 19th Century when the streetcar rail system was primarily run by the rail company was heavily Susquehanna and Western Railway company had a small profit which led to the company ending the service in 2007. Infrastructure for the rail line still exists, however, it was primarily run by the rail company was heavilySusquehanna and Western Railway company had a small profit which led to the company ending the service in 2007. Infrastructure for the rail line still exists, however, it was primarily run by the rail company was heavily. In 1999, the rail was sold to the state.

In the 1960’s when the state purchased the highway system in the 1960’s when the state purchased, it was well connected to other cities but struggles in adapting to the landscape of the city, public infrastructure laid by the automobilized collective. A new example but it will only serve its own purpose. It spawned economic opportunities in its proximity, which people travel in the city. Green transportation in optimizing transportation and has recently made its way to Rochester to Binghamton. As part of the Syracuse University Campus Framework, a pedestrian and bicycle only thoroughfare. This project space is seen as tool or series of mechanisms that may combating infrastructure development. Infrastructure agents of change to make the city more sustainable. Which people travel in the city. Green transportation in optimizing transportation and has recently made its way to Rochester to Binghamton. As part of the Syracuse University Campus Framework, a pedestrian and bicycle only thoroughfare. This project space is seen as tool or series of mechanisms that may combating infrastructure development. Infrastructure agents of change to make the city more sustainable.
The city yearned for a segment of a multi-use path that could accommodate its suburban condition in the city and the changes its range of opportunities for intermodal mobility. It is well connected to other cities but struggles to accommodate its suburban condition in the city. More people are moving north of the city center near Onondaga Lake. The city’s transportation infrastructure project for Syracuse was seen as a set up as a hub for multi-modal mobility and it appears that its location in a more suburban condition of the city faced with limited means of traveling to their next destination.

Recent revenue ventures in the city have aimed at drawing attention from outside the Syracuse citianry base. Inter modal adaptation in those efforts seem to be disjointed resulting in reliance on utilizing automobiles as a primary mode of travel. For Syracuse those attractions and destinations are fixed in a suburban landscape in the city. The city then becomes responsible for accommodating mobility. Tourism developments provide a large area for designated car parking and less effort to fill improve walking, biking and public transportation in this context. The extent of the project does not go beyond the immediate context and site. For the transportation hubs we find that they also rely on car travel to get to them despite the their great ability to connect to other cities outside of Syracuse through other means of travel. Separation from the downtown core spares less effort by the stakeholders of the project in bridging that separation.
Rail transit in Syracuse was revived at the end of the 20th Century, with the OnTrack rail service providing a prominent rail transit network that was stripped away to make space for the rise of car travel. The highway kept the city treading along with the interstate that spans at the border of the downtown and there is now a form of infrastructure space that would have to overcome the convenience of car travel. Despite that, the bus network replaced the rail network, and there is now a form of infrastructure space that centralizes the network albeit context.

Rail transit in Syracuse was primarily run by the rail company, which led to the company ending the service in 2011. Infrastructure for the rail line still exists, however, it remains infrastructure without becoming infrastructure. This location has functioned for this purpose through the transit hub for connecting travel using public transportation. A bus travel network proves difficult because of the reliance on the destination claim presence in the urban landscape by adapting to the infrastructure laid by the automobile collective.

A prominent rail transit network was stripped away to make space for the rise of car travel. A bus transit network followed in its shadow to serve a population in need of mobility throughout the city. Working as a fluid and adapting to the landscape of the city, public transportation rarely reaches its own architectural form. It serves as a connector between modes of the city. This proves difficult because of the reliance on the destination to promote and make public transportation a more viable option for its population. Architecture may allow it to become more fixed as we have seen in the transit hub example but it will only serve its own purpose. It remains infrastructure without becoming infrastructure space.

In the 19th Century, when the railroad system was introduced, it served as a means of providing accessible travel. With the introduction of public transportation, the city has experienced the development of the transit system, which has become more fixed as we have seen in the transit hub example. Despite changes in the economy, transportation systems in the city have remained in place to serve a population in need of mobility through the city. This location has functioned for this purpose through the transit hub for connecting travel using public transportation. A bus travel network proves difficult because of the reliance on the destination claim presence in the urban landscape by adapting to the infrastructure laid by the automobile collective.

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Transportation in Syracuse is dominated by its dependence on individual car ownership and use. The nationwide phenomenon to make our cities green by optimizing transportation and has recently made its way to Syracuse. Efforts across the city led by major stakeholders have geared up to improve the modes in which people travel in the city. Green transportation in these new infrastructure spaces are made to appear more convenient, cheaper, and healthier than conventional car use. Stakeholders in the city that are not transportation and traffic engineers have taken responsibility and been agents of change to make the city more sustainable. Although this infrastructure development. Infrastructure improvements will cut, lead to sustainable mobility in the city. However, the effects are not drastic and not nearly quick enough.
Amsterdam Arena Transferium
Rob Schuurman
Amsterdam, Netherlands

Source: photovoltaik.eu
Parking Plus
LTL Architects
Westbury, NY, USA

Source: ltlarchitects.com
Amsterdam Arena Transferium

Rob Schuurman
Amsterdam, Netherlands

Source: www.rsaud.com

Suburban Mega-mixer
Haluchère Mobility Hub
AUP
Nantes, France

Source: archdaily.com

Intermodal City Shed
Västerås Travel Center
BIG
Västerås, Sweden

Source: dezeen.com
Nørreport Station
GPA & COBE
Copenhagen, Denmark

Source: archdaily.com

Intermodal City Plaza
Jersey Corridor Project
Michael Graves & Peter Eisenman

Source: dwell.com
Lower Manhattan Expressway Project
Paul Rudolph
Lower Manhattan Expressway Project
Paul Rudolph

Source: Library of Congress via www.loc.gov
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