Aga Khan Program for Islamic Architecture
Final Report 2012

Introduction

This summer I worked with the Institute of Transportation and Development Policy (ITDP) — an international non-profit — in Ahmedabad, India on a new initiative to increase pedestrian and bicycle access and safety. I worked on developing a non-motorized transit (NMT) plan for the City of Rajkot, specifically focusing on creating a safer pedestrian network through dedicated infrastructure initiatives. A city that provides infrastructure supporting non-motorized transit not only promotes environmentally sustainable transit and more transit options for their citizens, but also promotes an equitable means for underserved communities to access city services and their destinations.

The goal of the project was to ultimately create a design guideline handbook that Rajkot city government leaders could use to guide their decision-making.

Some Background Information about Rajkot

Rajkot is at a crossroads and considered an "exploding city." The current population is an estimated 1.19 million people and population projections are approximated at 2.18 million people for 2021– virtually doubling in 10 years. By American standards Rajkot is huge, but in comparison to other Indian cities Rajkot is on the cusp of mid-size city status. Despite this rapid urbanization, Rajkot still has some of the "innocence" associated with small town charm.

With the growing population comes an increasing need for services and transportation. If Rajkot continues on the same trajectory, the city can expect to see traffic and congestion continue to increase. However there is an opportunity to change course. With focused and aggressive policies and infrastructure put into place, Rajkot can help to preserve the current culture of bicycle riding and walking by providing a safer NMT friendly environment through dedicated bike lanes and sidewalks.

NMT Street Design Handbook

Developing a NMT plan is one of the first steps to realizing progressive change and action. The very first step to developing an NMT plan is to understand what is actually happening on the ground. What kind of infrastructure is present in Rajkot? How many cars, motorcycles, rickshaws, bicycles, and people use the streets on an hourly basis? Who are the users? What are the dominant land uses (commercial, residential, public, open space, institutional, etc) in the city? Are there formal and informal markets on every corner? Where and how do people park? What is the accident rate? What is the street network like? All of these factors (and more) must be carefully calculated, weighed and considered when developing a transportation plan of any kind.

About the Project

Promoting Walkable, Bikable Streets in Rajkot, India: Developing a Non-Motorized Transit Plan for Rajkot

At the personal request of Rajkot's Municipal Commissioner, this summer ITDP embarked on a new initiative to develop a NMT Plan for Rajkot. There is growing recognition that Rajkot's streets need to provide safe facilities for walking, given that 40 percent of trips in the city are pedestrian trips. As there is the political will to make the city a more pedestrian and bicycle friendly environment, this is an opportune time to provide decision-makers with the technical expertise they need to implement environmentally sustainable policies.

When finalized, the handbook will be used as a reference for city engineers in the Rajkot Municipal Corporation and paired with training workshops and fieldwork studies. It seeks to provide policy recommendations and guidelines based on technical research, data and local feedback with a range of visual documentation, mapping, and analysis of the existing urban issues related to transportation in terms of development, livability, environment and equity.

This summer I worked with a team in ITDP Ahmedabad's local office to interpret urban patterns and help communicate potential transportation futures. My work contributed to the larger task of creating the handbook. Over the 8 week internship I focused and developed the following components:

1. Data collection and management
- Developed a methodology and schedule for the surveying of existing conditions in Rajkot, including edge conditions, land uses, rights-of-way, market areas, parking demand, and other important features
- Created a geographic information systems (GIS) map and database of the Rajkot street network to store information on existing conditions and design proposals
- Developed a workflow for entry of survey data and transition from data entry formats (i.e. Google Earth) to the GIS database
- Monitored data collection activities carried out by other ITDP intern
- Validated survey data through follow-up site observations and comparison with traffic counts and other information in prior studies
- Developed a photo database of existing conditions

2. Reviewed existing materials
- Gathered and reviewed existing studies and plans concerning the Rajkot transport system. Identify lacunae related to non-motorized transport in the prior reports that should be addressed in the present plan.
- Prepared a report chapter explaining the findings, recommendations, and shortcomings of these prior studies.

3. Analysis of existing conditions
- Developed a framework for characterizing the typology of the streets in Rajkot
- Prepared a report chapter explaining the existing conditions, including a series a series of maps illustrating the typologies and specific features of the streets in Rajkot

The Importance of Data Collection and Management

Once we started collecting data, I began to ask the following questions: How do you transfer raw notes into an electronic format that can be used to develop a database system? What is the goal of this system? Will it be used once or must it be valid for a longer-term study? What is the best electronic platform? Will it be used for statistical analysis or should it be "mappable" in GIS too? Throughout the internship, I learned to answer these crucial questions. These must be considered when developing a strategy to input and manage the data.

In the U.S.—with the Census, the annual American Community Survey, myriad public and private research institutes, and the ability to access much of it via the Freedom of Information Act (FOIA)—it's easy to forget that someone has to actually go out and systematically collect the information we eventually call "data." This process can take place in many different forms, whether it's a paper survey, website, mobile text messaging or interviews. In the end it comes down to a collector and a system.

With the gap of information in Rajkot, we had to start from scratch. There were also logistical question to be answered. As a non-profit, how much funding does the organization want to dedicate and rely on costly software? Can everyone access the documents remotely and in real time, or is it static based on one computer only?

Ultimately the system we devised was a series of steps using Excel and Google Maps → Google Earth → QGIS. With Google documents offering Excel and QGIS as the free open-source version of ArchGIS, all of these programs are open-source. Open-source software ensures that we can also share the data in a usable form with other users—both inside and outside ITDP—without software restrictions. Google Docs and Maps allow remote real time access to the project, allowing multiple users to access and manipulate the same information from remote locations. Plus it's free. All you need is access to a computer and an Internet connection.

Community Impact

NMT is not merely a transportation issue, but it is an equity issue as well. Often the poorest of the poor are forced to depend solely on walking– and if in a slightly better financial situation, bicycling. A city that provides infrastructure supporting non-motorized transit not only promotes environmentally sustainable transit and more transit options for their citizens, but it also promotes an equitable means for underserved communities to access city services and their destinations. Implementing infrastructure that supports NMT users affects the entire community of Rajkot as it provides everyone with an alternative transportation options, cuts greenhouse gas emissions, helps reduce poverty and social inequality, and improve the quality of urban life.

In 2011, ITDP signed a Memorandum of Understanding with Rajkot Municipal Corporation. This NMT report is one component within a larger push for sustainable and equitable transportation framework in Rajkot. ITDP is working on the following:
- Technical guidance for successful implementation of Bicycle and Pedestrian (NMT) network.
- Development of complete streets manual
- Formulation of TDM plans and Parking Policy
- Training and capacity building of RMC officials.
- High quality Bus and BRT Systems
- Institutional and Financial framework for sustainable transport projects
- Suggesting short term and long term vision plans for policy interventions in sustainable transport
- Planning innovative public awareness campaigns towards NMT and use of bus.

Personal Impact

One of the largest lessons I learned was data cannot be taken for granted. It is incredibly difficult to make good, effective decisions without an understanding of what the current situation is. Government at all levels across India lack basic and critical information about their populations, communities, and cities. Rajkot was no exception. Therefore the very first thing that had to be done was "take the pulse" of Rajkot.

Part of systematic and thorough data collection is talking to community members and hearing their thoughts about their city. While this was not a mandated component by ITDP, I wish it were, because I learned the most from this exercise.

All too often quantitative data takes precedent over qualitative data. Quantitative data is alluring and "sexy" because statisticians can make predictions based on calculations. They can produce a number at the end, which then becomes a data point or a "fact" which feels very powerful in its certainty.

There is absolutely no denying the power in numbers. However, the lesson that I learned this summer is numbers do not substitute information gained from talking with people. A good, balanced survey will have both quantitative *and* qualitative data as complimentary and supporting evidence. Neither "soft" nor "hard" data should take precedence over the other because they are equally important.

Final Thoughts

All in all this was an amazing summer in Ahmedabad. For all the challenges and tribulations, there was no substitute for actually living and *being* there. India is hot, chaotic, dirty and overwhelming for the newcomer. By the end of my time, I was learning to see beyond the initial shock and began to "peel back" a few layers of the "India onion." This summer rejuvenated my commitment to working in the international development sector. It would have not been possible without the support of the Aga Khan Program for Islamic Architecture.