

# **Human Settlements Planning**

## **Lecture 16**

### **Transit-Oriented Development**

Transit oriented development or otherwise commonly referred to as TOD suggests mixed use, higher density, pedestrian friendly development within walking distance of a transit station., where we give importance to the movement of people and the goods and around this concept the entire community, town or city is built.

Characteristics of a TOD are:- a mix of uses, moderate to high density, pedestrian orientation or connectivity, transportation choices, reduced parking, high quality design. Mix of uses and reduced parking are very 2 important characteristics we have to look at. Mix of uses means you will have a combination of residential commercial institutional government buildings within one particular area which make sure that the area is going to be utilized throughout the day as well as night. And reduced parking suggests that more importance is going to be given to pedestrian activity or public transportation. So both of these reflect very good design with respect to environment being and environmental friendly as well as people friendly.

Reasons to pursue TOD \* encourage smart growth development;\* decrease cost of municipal services;\* improve tax base;\* improve environmental quality ;and broaden transit financing options. The factors that support TOD \* strong market conditions;\* regional commitment to transit;\* strong and respected local leadership;\* supportive policies and tools.

It is easy to say lets reduce pollution, let's reduce congestion, let's not take individual cars, let us use public transportation. But before we claim like or make a claim like that we have to ensure that the public transportation afforded in that area can be accommodated by everyone. It can be utilized and can be connected to different parts of the town or the city. We have to ensure that the transit and the public transit is in good condition is in the right connectivity as in the right place. It is only then that we can say reduce individual cars it will automatically happen once the public transportation in that area is really of good quality.

Supportive market conditions:- competitive station area;\* vacant or re-development land available;\* large parcels in single ownership or easily assembled.

Regional commitment to transit:- strong transit agencies;\* committed public sector funding for the transit and strong transit ridership. So when you have usually this transit is required by either the urban rural fringe or by a sub-urban community or a satellite town. When you want to commute to an important town or a centre of business district you cannot afford to live there, you want to live in a clutter free, well developed, less congested area but your work is in the CPD or in the inner city, you do not you cannot afford to take a vehicle- afford is not in the financial sense but in the time factor also. It might take 2 hours one way to commute or it may take 1 hour that is too much of time spent on a travel. So what is the requirement of the transit by that community? Is it going to be utilized? What is the targeted audience? Is it only going to be by the labour class? Is it by a vast range of people from the labour class to the higher echelons of community, so we have to study what is going to be the ridership. Then we can study find out about the funding and then ensure that a good agency either a public or a public private partnership can be developed to develop the transit.

Strong and respected local leadership you need to have political as well as private sector backing throughout ; - out spoken support for transit investment;\* public and private investment in corridors and station areas;\* and transit usage. So what are the supportive municipal policies or tools:- station area plans;\* higher density or mixed use zoning;\* density bonuses;\* reduced parking requirements;\* design standards or guidelines;\* pedestrian amenities; and public investment policies.

Station area plans it should be one fourth to half a mile around the transit station. This area is defined by natural or man-made boundaries;\* other opportunities or constraints;\* consider existing or potential land uses and you need to make sure you incorporate regulatory changes.

This for example is the Hartford station area plan. There is a proposed bus way station. So once you have the railway station from that to connect to you cannot walk obviously to your house in every direction. So it has to be connected to the next level of transportation which is bus. The bus could then lead to a community

where you can just walk to your home. So this has to have a set hierarchal pattern where from the transit is not just stopped with a train but it is further connected by a bus. Usually what happens in many areas is they will have a car parking allotted with every station or in our country you will have a bike parking allotted to every station. You can see such facilities provided in Tambaram railway station as well as in Guindy where people will ride their two-wheeler park it over there, utilize the station and the train to reach to their work place and go back the same way back home. So when In the similar situation you can avoid further congestion in the road by introducing a good shuttle system of small buses between the station and the relevant areas around the station.

This is the Columbus Ohio station plan, again you can see the importance given to parking of vehicles because that's what mostly people ended up doing.

What are the typical guidelines:- \* minimal setbacks;\* parking in the rear;\* pedestrian seating;\* good signage so people know where is what they are not mislead or they dont have to find the necessity to ask for directions to strangers;\* good street lighting;\* wide well designed sidewalks:\*major public avenues;\* multi-purpose stations:\* clear transit pedestrian as well as vehicular collections;\* respect for neighbourhood spaces:\* and integration of the station with neighbourhood . The last point is very important that the neighbourhood and the station should be integrated, well they should be cohesive and they should not be in separate features. When that happens when the neighbourhood has no connection to that station, The station becomes a proliferated place for illegal activity or anti social activities . The station should be placed in such a place in the neighbourhood that it has maximum utilization that is it can be connected to many areas from that one place. So all of this has to be taken care while planning the station.

This is the Concord centre in Massachusetts transit –oriented streetscape improvements. So when you have a transit where it is either a train or a tram or a bus whatever it is within the city or connecting the city to the outer fringe you can have related streetscape improvements. Every station could have a particular information centre about the city, tourist information centre, it could have certain kiosk for sales of cafés . So all of this provides not only break from the routine and monotony of the cityscape but also provides for employment opportunities.

Who benefits from linking transit and development?;- \* residents;\* property owners;\* municipal governments;\* transit agencies;\* and also developers. The municipal benefits are :-\* increased residential and commercial property taxes;\* reduced infrastructure and service costs;\* opportunities for reuse and re development;\* transportation options;\*reduced auto congestion;\* and crime reduction.

Types of TOD:- you have first the joint development and air rights;\*co-development;\*transit- responsive development and reinvestment and redevelopment. The joint development and air rights is it almost always uses station sites or air rights. Air rights is basically nothing but nothing can be built above the station on a future date. So the transit agency actually sells the air above this and that's what is referred to as air rights.\* transit agency is an important and active partner;\*it is a potential for shared construction;\*operation or management of station may be combined.

This is the Harvard square air rights development., where they ensure that the cityscape can be controlled. This is Copley place in Boston similarly. This is the Kendall square and Marriott and T station.

Co-development:- this usually involves sites adjacent to stations. This occurs when the station is built. Involves co-operation for mutual benefit;\* potential to co-ordinate design and construction of development as well as the station.

Community college at the Orange line station. So you know that a particular plot could be empty near your station. What suitable activity can be developed?. So that can be done with some planning ahead. Obviously having a community college near a station is very useful because you 're gonna have students, faculty members other people who work at that college can use that train line and they can access their building with just a walk able distance. So you can completely avoid the use of providing bike spaces, car spaces and parking garages. So a lot of profit can be made by the developer as well as the college as well as the environment no longer around.

This is the office and housing development at Alewife red line station. Again here what they have done is when they have found an empty plot of land they decided why not we develop an office and a housing development. So once such a process

comes in you can ensure that the station is definitely going to be used, its not going to be redundant, as well as the office and the housing development will have a ready place where they can commute to different parts of the city and that adds to the value of the housing development as well. You can say that it is only 500 metres from the station. So that people are attracted to move there because they can spend less on fuel, they can spend less time travelling, and its obviously an attraction to live in that place. This is an office development adjacent to Davis square station.

Transit –responsive development:-\*this is located within walking distance of a station:\*transit enhances viability of existing sites:\*transit agency need not necessarily be directly involved in this development opportunity. This is the Ballard vale station in North Andover. Canton in Massachusetts where you have Condominiums at the station. So this need not be bang right at the station because one of the main disadvantages of living right at the station is noise, safety and you cannot promote a higher end living accommodation near a station. So let's do it within a one –fourth mile or half mile radius, where you can walk it down, or maximum you can use a cycle, or may be have buses that trans shuttle between the flats or house development to the station. This is the Concord centre housing and retail. You have shops in the ground floor and you have houses in the first floor.

Reinvestment and redevelopment:-in this the transit can actually stabilize property values:\*encourage investment in existing properties:\* leads to increase in property values with modest investments. So what happens with certain areas is they become redundant. They do not have any use after a certain point of time, The businesses might have moved from there to another location, they might have actually got into another branch office, they might have moved and they might not have any other source of getting businesses back in. When you want to redevelop, and re create an interest in such a place the best thing to do is create a transit depot like this. So once that is done obviously people can easily move into that area and then you can make sure that businesses will have a reason to reinvest as well as change the value of the land in that particular area. This is the East Cambridge Reinvestment after the Red line Extension. This is like a before and after, how it is completely changed the economy of that place.

This is the Andover centre station area re-use. And here you have the Newton centre station and as well as shops. So when you provide for some economic activity, some particular street, mall or some particular attraction near the transit, then there is a particular relationship the community develops with the transit and it is utilized to the maximum. If you pay and put the investment to build a transit line, build a station, and people do not use that, then it is completely wasted money.

Here you have the Building Reuse near Downtown Haverhill commuter rail station.

Transit adjacent development which is completely a missed opportunity. New development adjacent to the transit, but without connectivity to or interaction with the transit.

Jefferson at Salem Station- no pedestrian access. So that way you are pretty much cut out it doesn't make any difference.

Beverly Farms Station Reuse but no transit- supportive uses.

How do you go about financing a TOD?-\* often combines private and public financing;\*market conditions will dictate public private ratio;\*public financing can take many forms, from sharing infrastructural costs to outright grants.

Federal financing tools:-you have a lot of these programs which are supported by in the United States if you look at it as a case study which we have till now, you have the transport enhancement program, the congestion, mitigation and air quality program, you have a transportation infrastructure finance and innovation act, location efficient mortgages. So when you have so many tools supporting the transit development they are pretty much incentivising ok we are giving you these incentives, if the state or the city develop these tools the central government will get will give some incentive to the state government. A similar thing can be applied within our frame structure as well. The state can also finance it similarly, a commercial area transit node , a TOD bond program, off street parking, when you do not provide for systems like transit , and public transport and transits in different ways, you will have to provide for large open space for parking otherwise it will congest the streets where street parking is done either legally or illegally. So

you have to ensure that as a government body what is better, where can these transit facilities be provided such that even the government can make money in the longer run. Like we have just seen, there are a lot of developments that can happen right near a transit station or within the vicinity of a transit station.

Local incentives:- flexible parking requirements;\* air rights development ;\* capital improvement plans.lot of these transit support design guidelines a lot of these things will actually help. You have station area plans, \*site assemblage;\* land swaps:\* sale or lease of development rights:\*provision of infrastructure:\* tax increment financing:\* and sighting of government facilities. Now we look at this as a case study, Canton Massachusetts, you have the Canton centre station. This was a revitalization strategy which led to the adoption by the town in 2000 of the Canton centre economic opportunity district. So the town created several components of the by law to directly encourage transit oriented development and better connect the station itself to the down town. So this actually not only rehabilitates just the transit development but also the area surrounding or the economic activity that this transit pattern will develop, where people from surrounding areas can also come under this area, without depending on their own private vehicles. So by this you are actually encouraging movement of people so there is a share of knowledge , culture ,etc., movement of economy because you will have new shops and other related businesses that emerge. So in 1987 the town prepared a long range plan which intended to direct development in Concord. The long range plan identified the Concord centre station as important node for future higher density commercial as well as residential development.

This is Somerville in Massachusetts where you have the Davis square redline station. Residents, businesses and public officials created the Davis square action plan in anticipation of a new Red line heavy rail station in Somerville. The land led to the establishment of the Davis Square Redevelopment area, adoption of a design review overlay district and resourceful public financing to create a vibrant, mixed use urban centre which is focused around the T station. So the train station actually becomes the hub of all activities, people can move in and out, it creates a vibrant look to the entire community and to that entire area. So if you bring it down to our context, a particular neighbourhood can be completely revived and you can also decongest that area. A similar thing can be adopted in a place like T Nagar where congestion is the main problem narrow roads are a problem which cannot be widen

because of development that has already happened, and you can actually revitalize the entire area by ensuring that the transit system is not only walkable but also an attractive option for people to travel. How do you go about creating a sustainable tomorrow?

## **Integrated Townships**

Now we will move onto integrated townships. If you look at the background of what exactly an integrated township is – it comprises of combination of residential, commercial, recreational and other elements necessary to create a conducive environment for living. The demand for residential, commercial ,office and corporate space is on the rise. Thus there is immense opportunity to develop integrated township projects. Off late , demand for affordable housing has also seen an increase. Now if you look at any real estate developer, the mantra for most of them is to have a mixed use development. Why do you want to travel to work? Because of this development of the IT sector and the IT corridor, all of them are promoting having a residence very close to the house ,or incorporated along with the IT building or an IT office building, which has its own school, it has a basic facility of clinics, it has shops, it has obviously residences. So that is the concept of having an integrated township. If required, you don't even have to leave the township unless you want to. So your basic necessities including your everyday job, shouldn't have to take you out of that particular space.

What is the potential for integrated development in India?

Demand for housing is estimated to the tune of 22 million homes . \* Scope exists for 400 township projects spread across 30-35 cities in the next 5 years. \* Off shoring phenomenon has boosted the corporate space requirements. The CAGR in office property demand is expected to be 14.5% in the future.\* Organized retail market is also growing at 20 – 25% per annum.

Now what are the factors that influence market growth?

\*Positive outlook of the Indian government.\*Easier access to bank loans and higher earnings.\* presence of large number of reputed companies demanding office space, \*relaxed FDI guidelines for investment in real estate,-the revised guidelines allow 100% FDI, ownership of land by foreigners and dropped the



minimum size of development from 100 to 25 acres,\* banks have also relaxed lending norms for hospital and office space developers..

Approach to integrated development:-. First the real estate is the core central factor. You first need to envision what kind of a project you're going to have. How are you going to go about ensuring that it is going to be an integrated development.

Project feasibility and master planning. How is the integrated township?, where is the site?, what percentage of it is going to be residential?, what percentage is going to be commercial , what kind of office space wants to come in there, what kind of a school wants to come in there, is there a market for this? So all of those studies have to be done. How feasible is it going to be? Then you need to have an implementation structure. Ok master plan is in place. How am I going to go about implementing it and how much is it going to cost me? And once you have that in place you can have your financial closure. Now you have a tentative idea how much its going to cost you, how long its going to take for this township to come into being.? Then you have the next important phase of implementation which is execution of the project and even more important part marketing it. As and when it is developing , it has to start marketing, because as you develop the township you want to start selling your houses you and before the township has even started you want to make sure your school is in place, your clinic is in place that is you have a particular body who is interested in coming in as well as an important and reputed office space guy who wants to come in and set shop there. It is only after these three are in place that you go to the next stage. And finally you have project management and supervision. You have to ensure that your project management and supervision and the vision you had for the integrated community is at least at par if not identical.

Now the project development process;- you need to prepare your project, then you have your financial structuring, and then your execution and marketing. Your financial structure and the execution and marketing goes back and forth, because your structuring can be based on bank loans, private infrastructural people who want to come in, as well as people who are going to buy in and they will be investing in your property. And finally, you have a monitoring and supervision of that particular process.

Now looking at IIDC as a project developer. It actually dons many hats- multiple role play.\* overall project manager coordinating the activities of several experts.\* oversees project execution at all phases \* provides project advisory.\* \*syndicates funds that is you have either an investment banker or a merchant banker, it could also co-invest in SPV if form and if desired.

Now role of IIDC 1:- establish initial feasibility and scope of further studies are required,\* you need to prepare and finalize TOR for various studies,\* appoint consultants through a competitive process,\* work closely and assist with the promoter to work out appropriate financing mechanisms.

Next you need to bundle or unbundle projects as per their financial viability,\* you need to validate bankability of discrete projects, that is you need to show that your financier is in place, and you need to ensure that the project will smoothly go on for the people who are investing in your project. \* you need to formulate appropriate structuring mechanisms to optimize costs, tenures as well as risks, \* assess feasibility of alternate frameworks and assists the developer in finalizing one,\* prepare detailed term sheets so as to lead to timely financial closure.

Act as a facilitator or advisor for achieving financial closure,\* you need to have a process of identification of potential investors or lenders, \*you need to make sure you have a project presentation, \* assistance is due diligence,\* assistance in approval and documentations etc.,

Finally you need to facilitate commencement or execution of construction and this can be done by procuring detailed engineering design, \* getting detailed cost estimates done , \* preparing bid documents, \* working on selection and appointment of contractors,\* and preparation and finalization of construction contracts. So you need to ensure that whatever projections you have for funding and cost estimates it is over a period of few years, and your keeping in mind definitely there is going to be an escalation in cost of materials as well as cost of labour, because obviously you cannot build a township overnight or even within one year. Its going to take a couple of years and your cost estimate should reflect that.

Finally you need to monitor and oversee the progress of work in compliance with the contract, quality assurance, completeness and compatibility of work, and you

need to market the project for its successful development in liaison with promoters and specialized skills of realtors or consultants. To induce strategic partners as required you need to share or minimize projects risks. So you need to devise a strategy to induct co-developers, \* approach potential partners to participate,\* negotiate the role play and financial commitments of partners or co-developers. If you look at some examples of integrated townships in India, successful ones you have the Hiranandani Garden in Pawai. This complex has numerous facilities to support the residential establishment like a business park, school, hospital, shopping complexes and a hotel making it an integrated residential cum commercial township.

Then you have the Magarpatta city in Pune. this is similar which is located in the outskirts of Pune city , comprising both an SEZ offering residential, IT as well as commercial activities.

If you look at an overview of proposed integrated townships, this is you need to have a residential space, commercial, mixed land use , public semi-public, green spaces that is your recreation and open parks, and utilities like transportation and basic urban services. So if you look at a typical master plan of an integrated township you can see you have to take into consideration that there is mixed land use, residential, recreational, there is a hospital building you need to ensure that it is well connected, commercial spaces are demarcated, social infrastructure that is park, senior citizen park, specific children's park and even the residential land use has to be there for multiple income levels. You cannot just have all 4 bedrooms or all independent villas, you need to have 1 bedroom, 2 bedroom, 3 bedroom, and it should encompass a wide variety of economic groups. And you need to ensure that there is provision for electricity, STP, water. And if there is going to be an educational or a school building or commercial building, their generator and their consumption is demarcated separately. So you need to see what all potentials your building can offer or your township can offer with respect to consumption of energy production of energy in terms of solar energy , wind or anything else which is possible in that area. So clearly the different uses have to be demarcated, the zoning has to be done within that township, and it has to be done successfully such that people can live in a cohesive environmental clean environment. It has to be people friendly, pedestrian friendly and even vehicular access that is provided has to be accounted for and well developed and maintained.