WEBINAR SERIES ON
TRANSIT ORIENTED DEVELOPMENT IN INDIAN CITIES

Financing - Land Value Capture

PRERNA V MEHTA, LEAD – URBAN DEVELOPMENT

A product of WRI Ross Center for Sustainable Cities
COMPONENTS

- Institutional Setup
- Regulatory Framework
- Mapping
- Design Interventions  (Planning & Design and implementation)
- Financing
- Monitoring and Evaluation
GOAL

To impart understanding of the various Value Capture mechanisms that may contribute to facilitate Transit Oriented Development (TOD) planning and implementation.
TRANSIT ORIENTED DEVELOPMENT (TOD)

Land use + transport integration done right = 10 X economic value (over 2 decades)
Reduces gap between needs and access to resources
Avoids health spending
OPERATIONALIZING TOD: CHALLENGES

• Regulatory and Institutional gaps (enabling framework)
• Long gestation periods
• Upfront capital investment
• Limited public coffers
KEY STAKEHOLDERS IN TOD IMPLEMENTATION

Actors involved in TOD – financiers, developers and the government

• Need to be able to benefit equitably.
• Shared understanding and trust.
TOD INVESTMENTS

**TOD investment:** the allocation of resources by public, private, and other stakeholders that are expected to generate the range of benefits associated with TOD.

*Photograph source: UTTIPEC, DDA*
TOD INVESTMENTS

What

Investment components

• The various assets and processes that generate cost and revenues over the course of a TOD investment
INVESTMENT COMPONENTS

**Tangible assets**
- Land
- Infrastructure
- Construction
- Equipment

**Processes**
- Pre-construction
- Construction
- O & M

**Intangible assets**
- Resource efficiency
- Safety
- Culture
- Inclusiveness
- Accessibility
WHAT NEEDS TO BE FINANCED

Physical Infrastructure

• Land
• Transit Track (Bus Lanes, Railways etc.) and Transit stations
• Roads, street networks, pedestrians, bike lanes,
• Other TOD related investments (station plaza, bus terminal, public amenities, etc.)
• Public and private buildings
• Public utilities

Social Infrastructure

• Articulated Density
• Public safety
• Walkability
• Mixed land use
• Cohesive Community
• High Quality Public places and Cultural heritage

Processes

• Feasibility studies
• Detailed engineering and investment cost estimate
• Financing arrangement
• Securing lands and site preparation
• Procurement and construction
• Monitoring and evaluation
• Community engagement (all through critical stage from planning to implementation)
TOD INVESTMENTS

What

Investment components

- The various assets and processes that generate cost and revenues over the course of a TOD investment

Who

Delivery mechanism

- The commercial, contractual, and institutional arrangements exist to distribute the responsibilities and risks of the investment
DELIVERY MECHANISMS

Delivery Mechanisms

Institutional frameworks
- Regulations
- Enabling acts
- Programs

Contracts
- Lease agreement
- Service agreement
- Concession agreement

Legal entities & Structures
- PPP
- Special Purpose vehicle
- BID
TOD INVESTMENTS

What

Investment components

• The various assets and processes that generate cost and revenues over the course of a TOD investment

Who

Delivery mechanism

• The commercial, contractual, and institutional arrangements exist to distribute the responsibilities and risks of the investment

Where & How

Financial products

• Options for mobilizing investment capital that come at a cost for the financial service provided
FINANCIAL PRODUCTS

- Financial products
  - Equity
    - Direct
    - Indirect
  - De-risking products
    - Guarantees
    - Insurance
  - Debt
    - Loans
    - Bonds
TOD INVESTMENTS

**What**

**Investment components**
- The various assets and processes that generate cost and revenues over the course of a TOD investment

**Who**

**Delivery mechanism**
- The commercial, contractual, and institutional arrangements exist to distribute the responsibilities and risks of the investment

**Where & How**

**Financial products**
- Options for mobilizing investment capital that come at a cost for the financial service provided

**Funding Sources**
- Revenues, and other non-reimbursable monetary support, that can be used to repay the costs of the investment components
Funding sources

Investment Revenues
- Land Value increments
- Air rights sale
- Service charges

Own sources
- Taxes
- User Charges
- Fees and fines

Investment incentives
- Grants
- Fiscal Incentives
VALUE CAPTURE FINANCING (VCF) FOR TOD

- Additions to mass transit = increase in adjacent land values
- VCF method requires beneficiaries to contribute
LAND VALUE CAPTURE

Land Value capture is a type of public financing that recovers some or all of the value that public infrastructure generates for private landowners.
POLICIES AIDING VALUE CAPTURE FINANCING

- Metro Rail Policy (2017)
- National TOD Policy (2017)
STATUS QUO SO FAR VCF APPROACHES

• Traditional VCF recovers ‘uneearned increments’ (selling)
• Recent VCF finances infrastructure investments (capitalizing)
• Dissimilar applications for revenue generation;
• Often applied in combination (reduce individual + public spend)
VALUE CAPTURE MECHANISMS

COMPARATIVE INSIGHT
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<th>Mechanisms</th>
<th>Indian Examples</th>
<th>Global Examples</th>
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<tr>
<td></td>
<td>Vacant Land Tax</td>
<td>Mumbai, Hyderabad, Chennai, Hubli-Dharwad, Pune*</td>
<td>Washington D.C., Melbourne, Bogota, Seoul</td>
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<tr>
<td></td>
<td>Property Tax*</td>
<td>Delhi, Mumbai, Bengaluru, Ahmedabad, Bhubaneswar</td>
<td>Washington D.C., New York, Hong Kong, Singapore</td>
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<tr>
<td></td>
<td>Tax Increment Financing</td>
<td>Nil</td>
<td>Portland, New York, Chicago, London</td>
</tr>
<tr>
<td></td>
<td>Transit-focused Development Fees</td>
<td>Nil</td>
<td>London, Paris, San Francisco</td>
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<td></td>
<td>Payroll-based Tax</td>
<td>Nil</td>
<td>Paris, New York</td>
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<td>Fee-based</td>
<td>Fees for Change of Land-use (from agriculture to non-agriculture)/ Zoning fee*</td>
<td>Mumbai, Ahmedabad, Bengaluru, Kochi, Pune</td>
<td>New York</td>
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<td></td>
<td>Betterment Levy or Tax</td>
<td>Bengaluru, Ahmedabad, Mumbai, Pune*</td>
<td>London, Sydney, Singapore, Bogota</td>
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<tr>
<td></td>
<td>Development Charges/Impact Fee*</td>
<td>Mumbai, Ahmedabad, Pune</td>
<td>Arlington, Cape Coral, Fremont, Paris</td>
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<tr>
<td></td>
<td>Special Assessment</td>
<td>Nil</td>
<td>Washington D.C., New York</td>
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<tr>
<td></td>
<td>Fees for Regularising Unauthorised Development*</td>
<td>Delhi, Mumbai, Ahmedabad, Kochi</td>
<td>Nil</td>
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<tr>
<td></td>
<td>Additional Cess/Surcharge on New Building Permits</td>
<td>Bengaluru</td>
<td>Miami, Portland</td>
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<tr>
<td>Development-based</td>
<td>Transfer/Sale of Development Rights or Air Rights</td>
<td>Mumbai, Bengaluru, Ahmedabad, Pune</td>
<td>Sao Paulo, Hong Kong, London, Paris</td>
</tr>
<tr>
<td></td>
<td>Premium on Additional FAR*</td>
<td>Delhi, Mumbai, Bengaluru, Ahmedabad, Kochi</td>
<td>Charlotte, New York, Minneapolis, Portland</td>
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<tr>
<td></td>
<td>Land Acquisition and Development</td>
<td>Hyderabad, Bengaluru</td>
<td>Hong Kong, Tokyo</td>
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<tr>
<td></td>
<td>Town Planning Schemes (TPS)/ Land Pooling/ Land Readjustment</td>
<td>Delhi, Ahmedabad, Amravati, Mumbai, Bengaluru, Pune</td>
<td>Bangkok, Jakarta, Tokyo, Berlin</td>
</tr>
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* Extensively used in India
## MECHANISMS, FREQUENCY & SCALE OF INTERVENTION

<table>
<thead>
<tr>
<th>Category</th>
<th>Value Capture mechanisms</th>
<th>Frequency of Incidence</th>
<th>Scale of Intervention</th>
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<tbody>
<tr>
<td>Tax - Based</td>
<td>Land Value tax</td>
<td>Annual rates based on gain inland value uniformly</td>
<td>Area based</td>
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<tr>
<td></td>
<td>Vacant land Tax</td>
<td>Recurring</td>
<td>Area based</td>
</tr>
<tr>
<td></td>
<td>Tax Increment Financing</td>
<td>Recurring and for fixed period</td>
<td>Area based</td>
</tr>
<tr>
<td>Fee based</td>
<td>Fees for Changing landuse</td>
<td>One time</td>
<td>Area/Project based</td>
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<tr>
<td></td>
<td>Betterment levy</td>
<td>One-time while applying for project development rights</td>
<td>Area/Project based</td>
</tr>
<tr>
<td></td>
<td>Development charges (Impact fee)</td>
<td>One time</td>
<td>Area based</td>
</tr>
<tr>
<td>Development</td>
<td>Premium on additional FSI (Air rights)</td>
<td>One time</td>
<td>Area (roads, railways)/Project (metro)</td>
</tr>
<tr>
<td>based</td>
<td>Transfer of Development rights</td>
<td>Transaction based</td>
<td>Area/Project based</td>
</tr>
<tr>
<td></td>
<td>Land Acquisition &amp; Development</td>
<td>One time upfront before project initiation</td>
<td>Area/Project based</td>
</tr>
<tr>
<td></td>
<td>TP Schemes</td>
<td>One time upfront before project initiation</td>
<td>Area/Project based</td>
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</tbody>
</table>
BENEFITS

• Optimising land
• Financial sustainability
• Social and environmental gains

CHALLENGES

• Institutional coordination
• Planning frameworks
• Awareness and capacity
• Implementation
INDIAN CASE STUDIES
<table>
<thead>
<tr>
<th>Cities</th>
<th>Transit Funding/Financing</th>
<th>LVC mechanisms</th>
<th>Use of Revenue from LVC</th>
</tr>
</thead>
</table>
| Delhi  | • Equal equity from GoI, GNCTD  
• Land and Central taxes  
• Dedicated Urban Transport Fund (Phase 3)  
• Interest free subordinate debt for land cost  
• JICA soft loan | • Property Development Rights – advertising; station retail licenses; concession agreements and long-term lease for development of depot, standalone, govt. allotted sites.  
• **Proposed for TOD fund** - Sale of Premium FAR, External Development Charges. | • Towards transit capital costs, operations |
| Bengaluru | • Equal equity from GoI, GoK  
• Domestic/foreign bank loans  
• Metro bonds | **Proposed for Phase 1& 2:**  
• Additional Cess + Surcharge - on new building permits in BDA area to Metro Infrastructure Fund; shared by BMRCL (65%), BWSSB (20%), BDA (15%)  
• Cess - 10% (residential), 20% (commercial) on additional FAR in 150m zone; shared by BMRCL (60%), BBMP (20%), BWSSB (10%), BDA (10%)  
• Impact Fees - for additional FAR granted  
• TDR - issued by BMRC for land acquisition compensation  
**Proposed (Phase 2A)** – Property Development Rights, Station Joint Development (PPP), Sale of Premium FAR, Betterment Charges | • Towards transit capital costs, operations; infrastructure services |
<table>
<thead>
<tr>
<th>Cities</th>
<th>Transit Funding/Financing</th>
<th>LVC mechanisms</th>
<th>Use of Revenue from LVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmedabad</td>
<td>- JnNURM funds for BRTS&lt;br&gt;- Smart Cities funds for projects in TOD zones&lt;br&gt;- Proposed government grant (INR 12.5 per bus service km for 30 cities including Ahmedabad)&lt;br&gt;- Urban Transport Fund (UTF) revenues include AJL's parking and advertising charges, grants, LVC</td>
<td><strong>Proposed mechanisms (city wide):</strong>&lt;br&gt;- Sale of land parcels from TPS.&lt;br&gt;- PPP - for public spaces, advertising.&lt;br&gt;- Lease/rent/fees - retail spaces, on-street parking, vending.&lt;br&gt;- Impact fees, TDR, sale of premium FAR (city-wide).&lt;br&gt;- Guidance value property tax (4 yearly update).</td>
<td>- AJL part financed (viability gap funding from UTF) for transit improvements, operational deficits.&lt;br&gt;- AMC-AUDA can use to implement TOD plans.</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>- Equal equity from GoI, GoT&lt;br&gt;- L&amp;T bank loan&lt;br&gt;- Proposed - JnNURM funds for multimodal facilities, public amenities in TOD zones</td>
<td>- Rail + Property through Joint Development – lease/rentals from development of depot, station sites; station retail licenses; rights business; advertising</td>
<td>- Towards transit capital costs, operations</td>
</tr>
</tbody>
</table>
KEY LEARNINGS

Institutional Set-up:
• Need for streamlined institutional structures where transit agencies and urban local bodies work jointly on planning for value creation.
• Appointment of a nodal agency that coordinates between multiple stakeholders prove to be efficient.
• Clear-cut agreements between stakeholders and aligned mandates for different agencies, determined early in the process.

Implementation:
• Relevant stakeholders should jointly evaluate and determine transit routing, developable lands, planning/zoning parameters and LVC estimates.
• FAR thresholds and premiums should be carefully considered, fixed and operationalised.
• Town Planning Schemes, typically employed in new growth areas, is an efficient and equitable self-financing mechanism.
CONTINUED….

Regulatory framework:

• Institute local/station area plans; incorporate TOD zones and their development control regulations in city master plans.
• Incentivising a holistic approach to TOD would lead to desirable development and optimal LVC around transit stations.
• A tiered planning system aids in the creation of contextual plans with area-specific regulations at the micro level.
• Regulations should be flexible and responsive to diverse requirements.

Financial Arrangements:

• Cities should set up a TOD fund.
• A fair sharing model should be determined through collaborative engagement.
• An authority should be identified for the collection and disbursement of LVC revenues and its utilization
• Local governments should find convergence with and leverage funds from other national/state programs to finance transit and TOD.
WHERE SHOULD VCF REVENUE BE USED?

• Mass transit Capex + Opex
• Carrying capacity augmentation
• Social Infrastructure
• Affordable Housing
GLOBAL CASE STUDIES
SHENZHEN, R+P PROJECT
INSTITUTIONAL SET UP

Mayor's Office
Final decision making authority

Development and Reform Commission
- Project Feasibility Study
- Financial Plans

Government Affiliated Institutions
- ROLE: Zoning proposal and Property Valuation

Planning Land Resources Committee
- ROLE: Zoning amendments, construction approvals and land supplies

Shenzhen Metro Group Co. and MTR Group Co.
- ROLE: Subway financing, construction and operations
FINANCIAL SETUP

An institutional set up is being formed for the funding of the entire R+P project which happened in three phases namely:

- **Phase I:** Government capital investment
- **Phase II:** Special land-use rights auctions and land concession fee refunds
- **Phase III:** Government’s land equity investment

There are mainly four agencies working in a loop for Shenzhen’s R+P project funding.

CONTINUED….

Funding Structure of the Shenzhen Metro Group over the Three Phases of R+P Development

PHASE 1
- Bank Loans
- Government fiscal Budget
  70% of Capital Investment

1998-2004

PHASE 2
- PPP (BT, BOT)
- Fiscal Budget & Land Concession Fee
  Refunds
  50% of Capital Investment

2006-2011

PHASE 3
- PPP (BT, BOT)
- Corporate Bonds / Bills / Capital Leasing
- Bank Loans
- Land Equity Investment

2011-2016

PLANNING FRAMEWORK

R+P development poses new challenges to China’s existing planning processes. Therefore, Shenzhen has made many bold innovations in the planning system that can be broadly categorized as below:

- Aligned vision for R+P and multi-stakeholder engagement
- Integrated transit, land-use and financial planning
- Flexible regulatory zoning
KEY LEARNINGS

**Institutional Set-up:**

- Various agencies both public and private were involved but Mayor is the supreme power and decision maker for all.
- Clear agreements between the stakeholders and the multiple stakeholders.

**Implementation Framework:**

- Shenzhen’s R+P project was divided into three phases for smooth functioning and implementation of the project.
- The phases were created for a time span of 5 years each which leads to total project duration of 15 years.
- Regulations and planning norms were clearly laid out for proper necessary adoption. Incorporation of land-use and transit integration helped project move in a better manner avoiding clashes in the zoning at the later stage.
CONTINUED...

Financial arrangements:
- Various revenue generation sources.
- Clear framework between 4 major key players namely Shenzhen metro group, MTR Group, Shenzhen city government and developers is being laid.
- Phase-wise funding and financing is being taken care of by different agencies respectively.
- Involvement of private sector through various funding mechanisms such as auctions, TDR, B.O.T model and proper utilization of public sector funding.

Regulatory Framework:
- Innovations in planning framework and integration of transit, land-use and financial planning is being done.
- Flexible Zoning codes around transit stations to meet changing market demands.
- Incorporation of transit-oriented development in urban master and regulatory plans.
- Financial arrangements, integrated urban and transit planning frameworks and various land policy reforms were adopted.
- Regulated F.A.R. in case of rolling stock depot was adopted as per project demand thus giving leverages in F.A.R. consumption according to the uses.
- Innovative vertical division of land use rights in city centres to deal with land availability limitation.
Rail plus Property development in Hong Kong & Shenzhen leverages the partnership between the public sector, transit companies, and developers to coordinate planning and financing of transit systems and adjacent real-estate developments.

- By capturing the land value appreciation that follows transit projects, R+P can partly or completely fill the funding gaps in constructing costly infrastructure projects.
- Compared to financing tools such as infrastructure bonds and bank loans, R+P provides a new stream of funding for the construction and operation of public transit facilities without creating additional debt burdens.
# COMPARISON BETWEEN HONG KONG & SHENZHEN

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<tr>
<th>Metro Companies</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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<tr>
<td>MTR Hong Kong</td>
<td>Phase 1 &amp; Phase 2 – Shenzhen Metro Company&lt;br&gt;Phase 3 – MTR Shenzhen</td>
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<th>Government’s Investment</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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<tr>
<td>Land equity investment from the beginning of the project</td>
<td>Phase 1 – 70% Govt. Capital investment&lt;br&gt;Phase 2 – 50% Govt. Capital investment&lt;br&gt;Phase 3 – Land equity investment</td>
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<thead>
<tr>
<th>Price of Land (to transit company)</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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<tbody>
<tr>
<td>Based on before rail prices</td>
<td>Special Auctions with special terms to restrict the number bidders, prices slightly below the market rate.</td>
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<table>
<thead>
<tr>
<th>Land Premium</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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</thead>
<tbody>
<tr>
<td>Land premium was collected by the State government</td>
<td>In the first two phases the land premium was collected by the metro companies, it is only after the MTR joined the project the government decided not to allow MTR Shenzhen to reap all the land premium.</td>
<td></td>
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</tbody>
</table>

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<th>Land Concession</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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<tr>
<td>Charged from the transit company</td>
<td>Land Concession fee returned to the transit company by the government as a direct investment.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Scale of Government Investment</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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<tbody>
<tr>
<td>Line by line investigation to ensure future property revenues will just cover the funding gap of each line</td>
<td>Government Fixed rate, i.e., 50% of the total subway capital cost at each construction phase.</td>
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</tbody>
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<table>
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<tr>
<th>Government Estimates of Property Development Revenues</th>
<th>Hong Kong</th>
<th>Shenzhen</th>
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<tr>
<td>Based on optimistic market condition</td>
<td>Baseline values based on current market prices</td>
<td></td>
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</tbody>
</table>
HUDSON YARDS
Apex Authority: Hudson Yards Development Corporation (HYDC)

Hudson Yards Infrastructure Corporation (HYIC) and the New York City Office of Management and Budget for project financing and cost containment

Metropolitan Transportation Authority (MTA) for construction of the No. 7 Subway extension

MTA, New York City Department of City Planning and New York City Council for planning and development of the Eastern and Western Rail Yards

New York City Law Department for condemnation and other property acquisition

New York City Industrial Development Agency for financial incentive programs to spur commercial development

New York City Departments of City Planning, Housing Preservation & Development, Parks, and others for streets, parks, and other infrastructure improvements and for affordable housing development

Convention Centre Development and Operating Corporations for expansion of the Javits Convention Center and development of a convention center hotel

Purpose of collaboration:

- For project financing and cost containment
- For construction of the No. 7 Subway extension
- For planning and development of the Eastern and Western Rail Yards
- For condemnation and other property acquisition
- For financial incentive programs to spur commercial development
- For streets, parks, and other infrastructure improvements and for affordable housing development
- For expansion of the Javits Convention Center and development of a convention center hotel

Fig: Showing institutional set-up for Hudson Yards Project

The Hudson yards project includes a series of projects to transform area into a dynamic, transit-oriented urban centre, permitting medium- to high-density development and a mix of uses, including commercial, residential, open space, cultural, convention, and entertainment. Key activities undertaken by public agencies:

- Rezoning of the Far West Side
- Property acquisition
- Drafting and implementing Financial incentives
- Drafting and adopting of new Zoning regulation
- Hudson Yards street scape manual

CONTINUED…

Various Projects undertaken under Hudson yards project:

• Extension of the New York City Subway's 7 trains to a new subway station at 34th Street.

• MTA Rail Yards (Eastern and Western)

• Hudson Park & Boulevard
FINANCIAL SET UP

To fund the physical infrastructure improvements including No.7 subway line extension, platform on ERY and new parks and streets within the Hudson Yards Redevelopment Area a district improvement fund is created (HYDC, Development Information n.d.). Revenue for this district improvement fund is generated through the following mechanisms:

- Sale of FAR/ Sale of TDR
- Property Sale
- Sale or ground lease of public owned property
- Tax Increment Financing
  - Property tax on new residential development
  - Payment in lieu of Sales Tax (PILOST)
  - Payment in lieu of Taxes (PILOTs)
KEY LEARNINGS

**Institutional Set-up:**
- Streamlined institutional structure with defined roles and responsibilities where various stakeholders/agencies work jointly on planning, development and construction for value creation.
- A nodal agency that coordinates between multiple stakeholders.
- Clear-cut agreements between stakeholders and aligned mandates for different agencies, determined early in the process.

**Implementation Framework:**
- Long terms development over span of 30 years in Phased manner is envisaged early in the development process.
- Enabling regulations and planning norms were clearly laid out for proper necessary adoption.
- FAR thresholds and premiums were determined for the entire district along with their operational modalities for timely implementation and functioning.
- Critical land acquisitions were undertaken by public agency while allocating suitable incentives to the effected.
- Infrastructure augmentation was an important component of the entire redevelopment so that it is sustainable.
Financial Set-Up:

- Several revenues source and combination of Land Value capture mechanisms have been used.
- Extensive Involvement of private sector and utilization of private sector funding.
- The HYIC is the agency for financing the project and is responsible for managing the District improvement fund (DIF) as set-up for the HY project.

Regulatory Framework:

- District level plan was instituted along with necessary development control regulations for each project with the Hudson yards district.
- A holistic approach is adopted to ensure public good while maximizing on FAR component and giving impetus to overall economic development of the district.
THANK YOU!