



Strategy Paper – Transportation Mumbai Metropolitan Region



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Coverage of this presentation

Vision

The problems

Why strategy

The challenges

Initiatives

Aim

Process

Implementation Strategies

Vision – Transportation in Mumbai

“To enable smooth mass movement of commuters, limit time and distance for commuting and make efficient modes of transport available to all citizens of Mumbai”

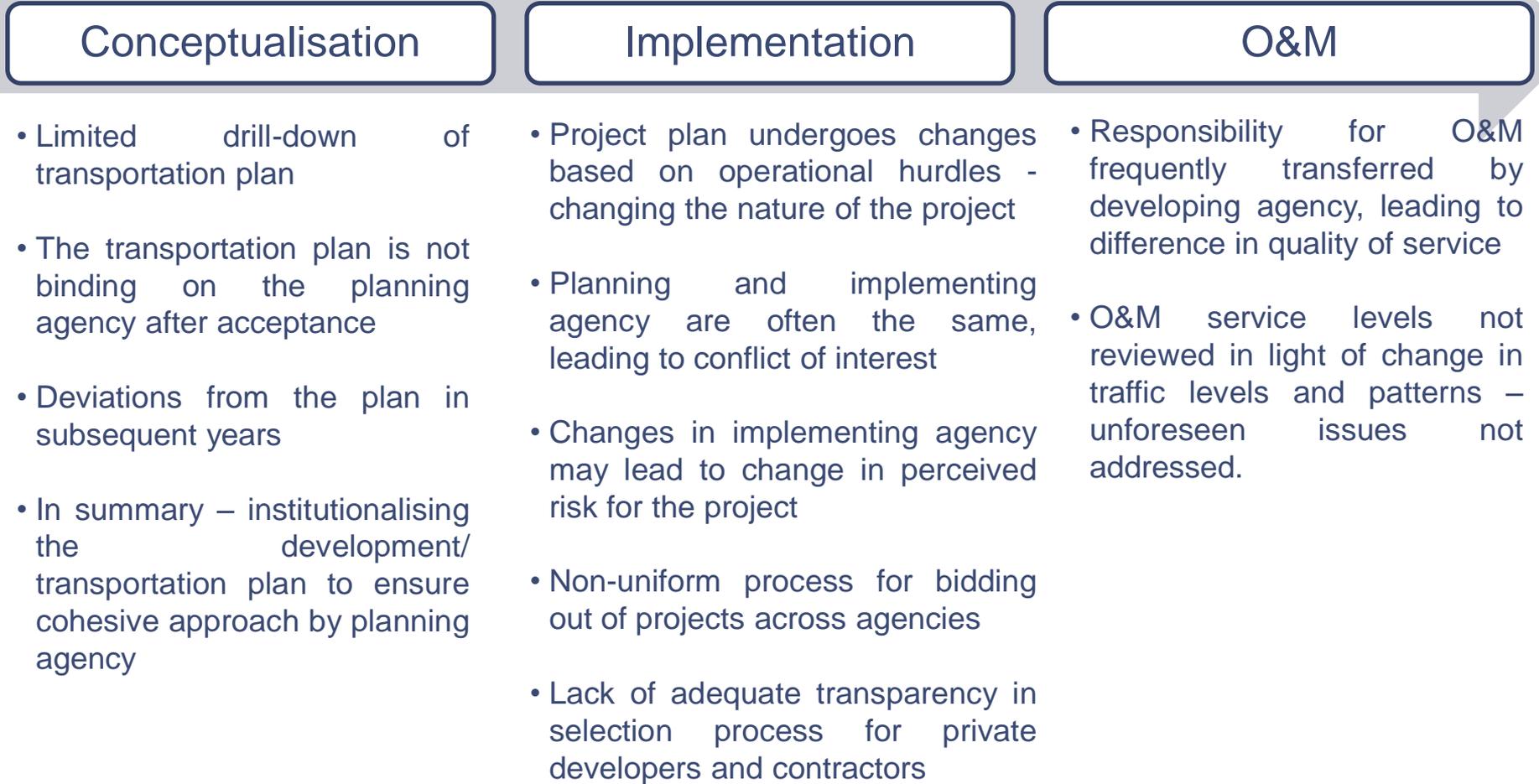
What is to be addressed?

- Mass transportation modes are highly overloaded
- Current modes lack capacity to cope with future commuter population growth
- Mass movement of commuters along linear routes from northern to southern part of island city
- Insufficient shift of commercial and business centres from island city to mainland suburbs
- Projects are not complementary to each other and do not feed into the overall transportation plan of the city
- Projects highly delayed – particularly in implementation stages
- Projects implementation by multiple agencies – accountability issues
- Project structure and implementation model undergo changes at implementation stage
- Lack of transparency and accountability in project implementation
- Unequal funding and implementation capacity of various government agencies within the city

Why do we need strategy for transportation

- Population of MMR \cong 21 million with a growth rate of \cong 2.7%
 - Likely population of \cong 28 million by 2020
 - Number of cars owned may increase by 35%
 - Over 6 million daily commuter trips may be added by 2020 to the load on existing suburban rail system
- Rapid growth of suburban areas, as compared to Greater Mumbai, leading to demand for transportation systems in newer areas
 - Population growth of Greater Mumbai is \cong 1.8%; regional growth of \cong 2.7% indicating high growth rates in suburbs
- Economic growth likely to be focused in new areas due to space requirement
 - Planned SEZs and industrial developments likely to lead to population growth as well as improved standard of living for existing population
 - ✓ May lead to car purchases and increased private road traffic in absence of suitable mass transport systems

What challenges are to be addressed



What challenges are to be addressed

Conceptualisation

- Distinction between financially viable projects and those with low viability but bringing socio-economic benefits is not made while determining project financing and implementation model
- Lack of clarity in revenue-sharing between operators of different component of an integrated transportation project (for example, a customer may board from one station of Line 1 of metro but may go to a station on Line 2)

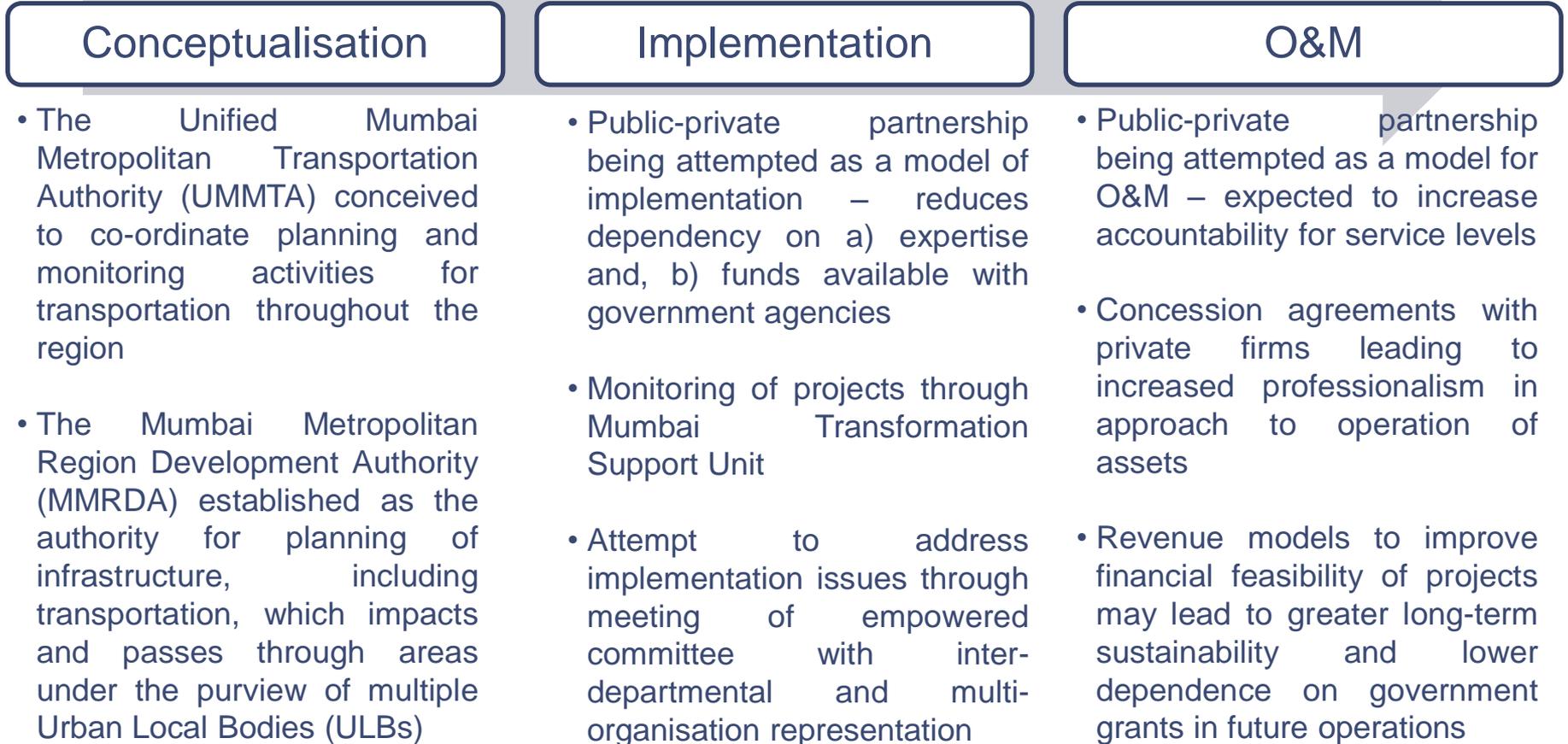
Implementation

- Risks of statutory clearances and rehabilitation shifted to private developer/contractor – despite implementing agency being in better position to resolve such issues
- Limited co-ordination between agencies (E.g. fare of AC buses may be more than fare of Metro – despite high capital cost and profitability constraints of the latter)

O&M

- Limited monitoring of service levels leading to slippage
- Citizen feedback system not rigorously implemented
- Retain the focus of implementing agencies on the O&M of existing projects without compromising on the need for identification of new projects

Key initiatives – Mumbai has covered some distance





Mumbai

- Initiatives
- Aim
- Process

Key initiatives – Mumbai has covered some distance

Project	Status
Western Freeway Sea Link	<ul style="list-style-type: none">• Bandra-Worli stretch<ul style="list-style-type: none">○ Four lanes in operation; others likely to be in operation by the end of 2009○ The project has seen significant delays and cost escalation○ Design changes and rehabilitation issues lead to delays• Worli-Haji Ali stretch<ul style="list-style-type: none">○ Under bidding process○ A key issues experienced has been the requirement for the Concessionaire to pay the cost of the Bandra-Worli sea link○ Utility of the project and traffic volume is highly dependent upon the completion of the third phase• Worli Nariman point<ul style="list-style-type: none">○ Design stage○ Model for implementation under review

Key initiatives – Mumbai has covered some distance

Project	Status
Mumbai Trans-Harbor Link	<ul style="list-style-type: none">• In planning stage• Witnessed revisions in implementation model• Execution on EPC contract failed to attract bidder interest<ul style="list-style-type: none">○ Assurance on resources for payment – a key issue• Key learning – activities to be completed prior to project promotion<ul style="list-style-type: none">○ Responsibility of dispersal on either side to be decided in advance○ Linkage to highways to be planned○ Land and waterfront access for the casting yard to be identified○ Project cost to be all-encompassing and should be agreed in advance in order to assure the base for VGF○ Capacity building to be undertaken to manage project issues related to:<ul style="list-style-type: none">▪ Limited resources with the agency▪ Multiple projects being executed by the same agency○ Basis for accepting cost escalation due to unforeseen technical reasons may be specified upfront○ Responsibility for intersection of road and rail lines to be decided

Key initiatives – Mumbai has covered some distance

Project	Status
Metro Rail	<ul style="list-style-type: none">• Line 1 under construction<ul style="list-style-type: none">○ Start of construction work for all lines has been delayed from the planned start dates○ Need for traffic diversion in congested areas has led to citizen issues and roadblocks○ Shifting of underground utilities has been a time-consuming process○ Litigation over plot to be used as parking shed for rakes also resulted in delays in construction○ Delays in regulatory clearances have impacted project timelines• Line 2 awarded to the preferred bidder• Line 3 in planning stage

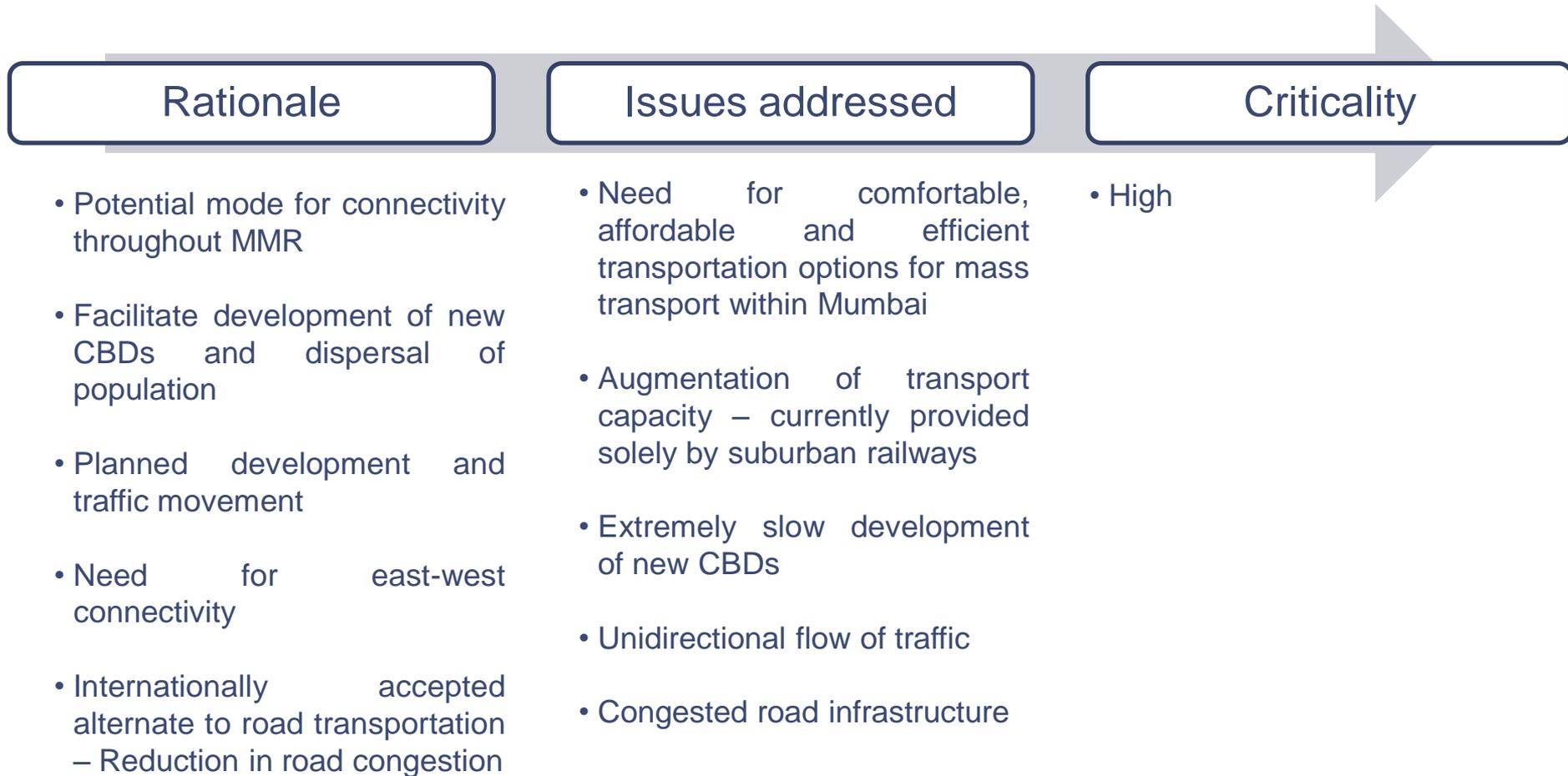
Key initiatives – Mumbai has covered some distance

Project	Status
Mumbai Urban Infrastructure Project	<ul style="list-style-type: none">• Road signages and marking provided• 13 out of 18 road widening corridors completed• 3 out of 11 planned flyovers are completed• Key reasons for delays - learning for future:<ul style="list-style-type: none">○ Co-ordination issues○ Existing structures in planned project areas○ Limited capacity to manage work on multiple stretches simultaneously○ Rehabilitation and resettlement issues• Quality of implementation is a key issue – frequent repairs required lead to blockage on roads and poor travel experience for commuters

Key initiatives – Mumbai has covered some distance

Project	Status
Mumbai Urban Transport Project	<ul style="list-style-type: none">• Projects been delayed at the implementation phase<ul style="list-style-type: none">○ Jogeshwari-Vikhroli Link Road delayed by over 2 years (62% completed)○ Santacruz-Chembur link road delayed by 2.5 years (28% completed)○ Virar-Dahanu lines, pedestrian subways and Kurla-Thane road 5th & 6th lane projects are ongoing• 101 Nine Car EMU rakes are currently being added in phases to the suburban railway system• Delay in land acquisition• Issues regarding shifting of utilities• Hurdles in road widening• Coordination issues• Rehabilitation and resettlement issues leading to suspension of World Bank financial assistance - delays due to funding issues

Key initiatives – Metro Rail



Key initiatives – Eastern/ Western Freeway and Mumbai Trans-harbor Link

Rationale

- Need for high-speed ring road around Mumbai for rapid transportation of commuters
- Potential for development on PPP
- Feeder links to facilitate intermittent development
- Unexploited long sea line of Mumbai
- Potential for having high capacity - can accommodate BRTS with limited connectivity
- Development of MTHL to facilitate commercial/residential development on either side – a distant possibility with the current connectivity

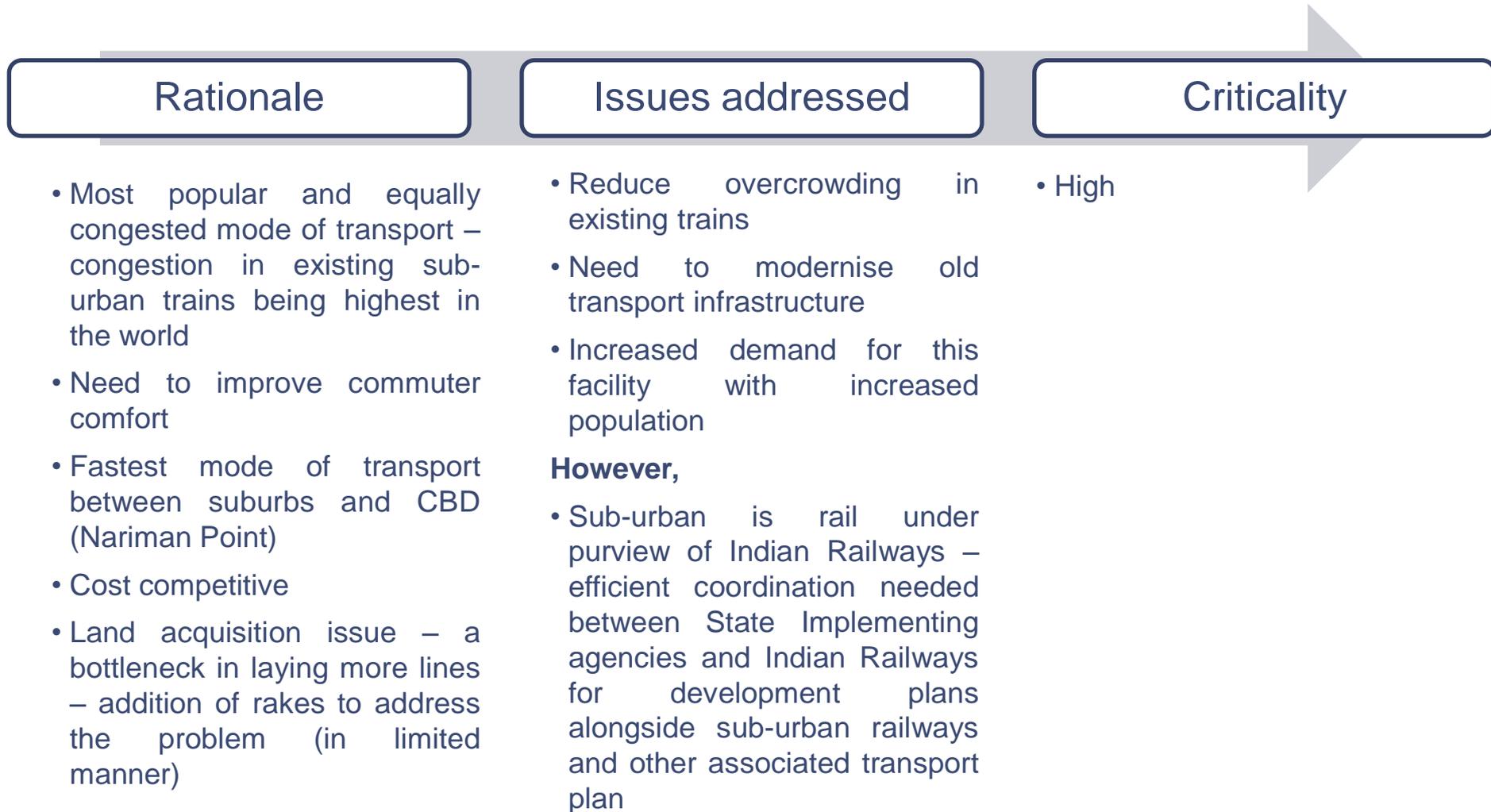
Issues addressed

- High-speed travel should be facilitated independent of local traffic within the city
- Easing congestion on the existing route
- No issues of land acquisition (though the same would be required at either end)
- Development without traffic disruption
- Reduction in commuting time, leading to improved demand for new residential areas in distant suburbs

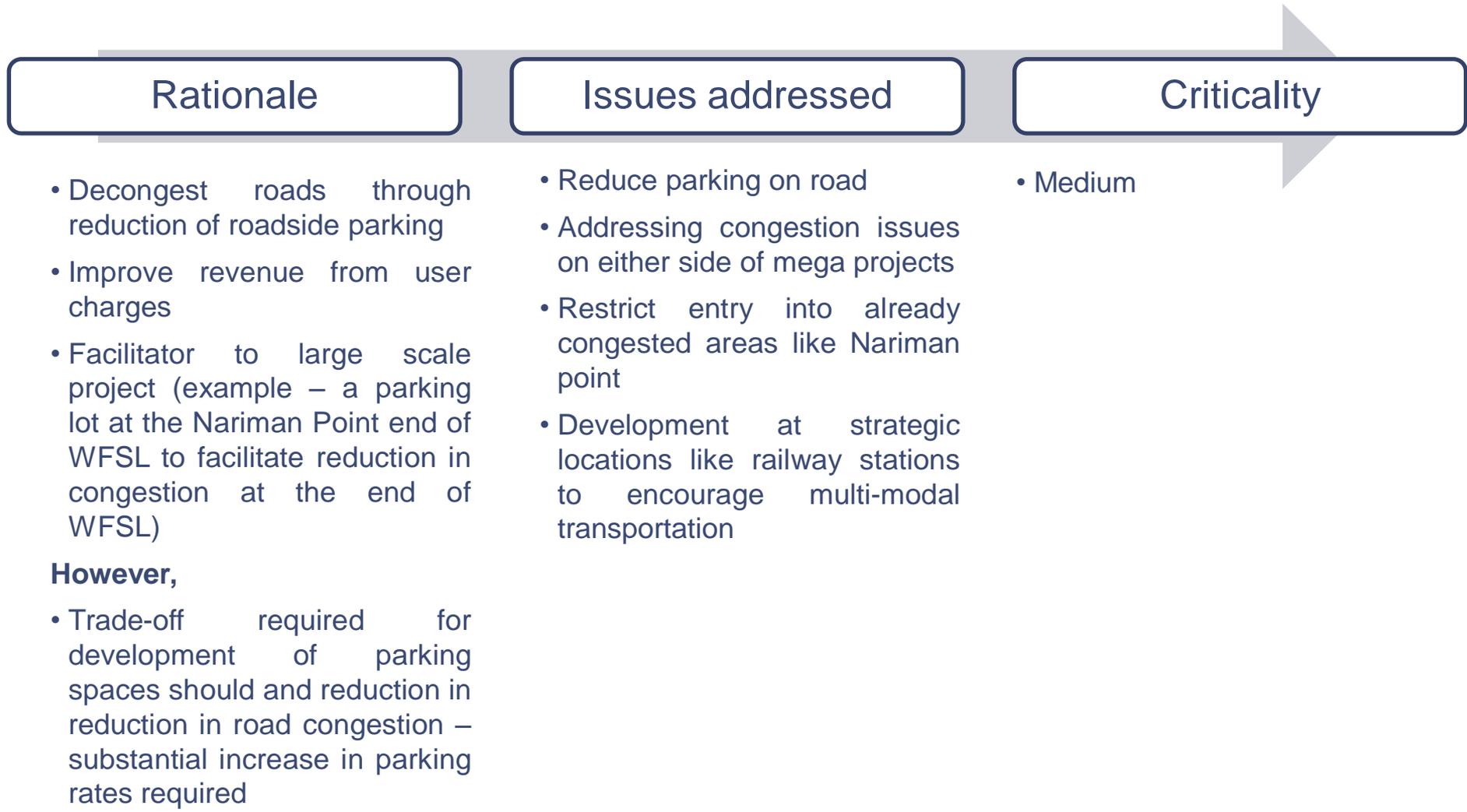
Criticality

- High
- While the Bandra Worli Sea Link has eased congestion at Mahim causeway, the congestion at each end of the sea link continues to be a concern – future sea links to be conceptualised in totality to avoid such problems

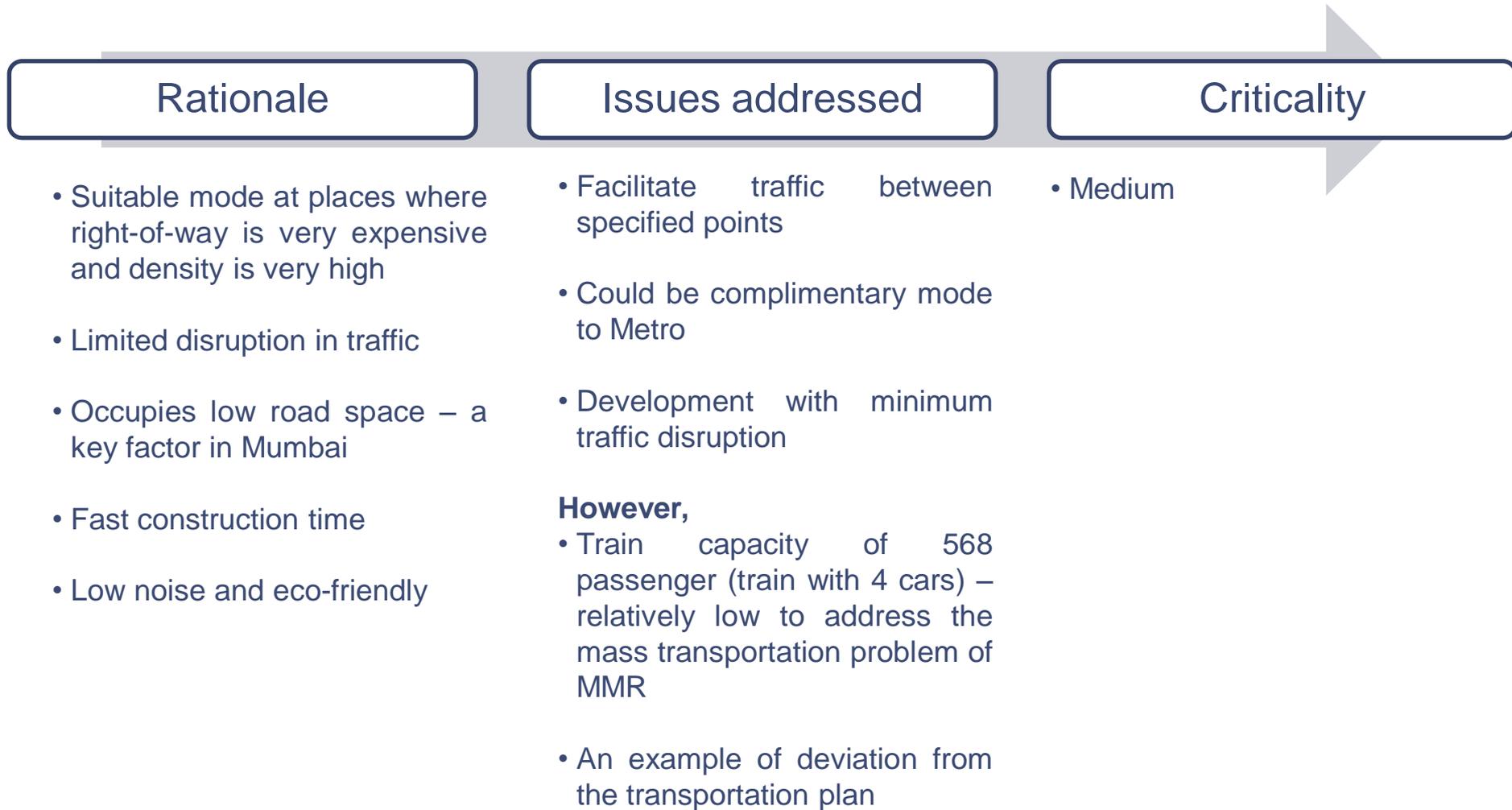
Key initiatives – MUIP (rail - addition of rakes)



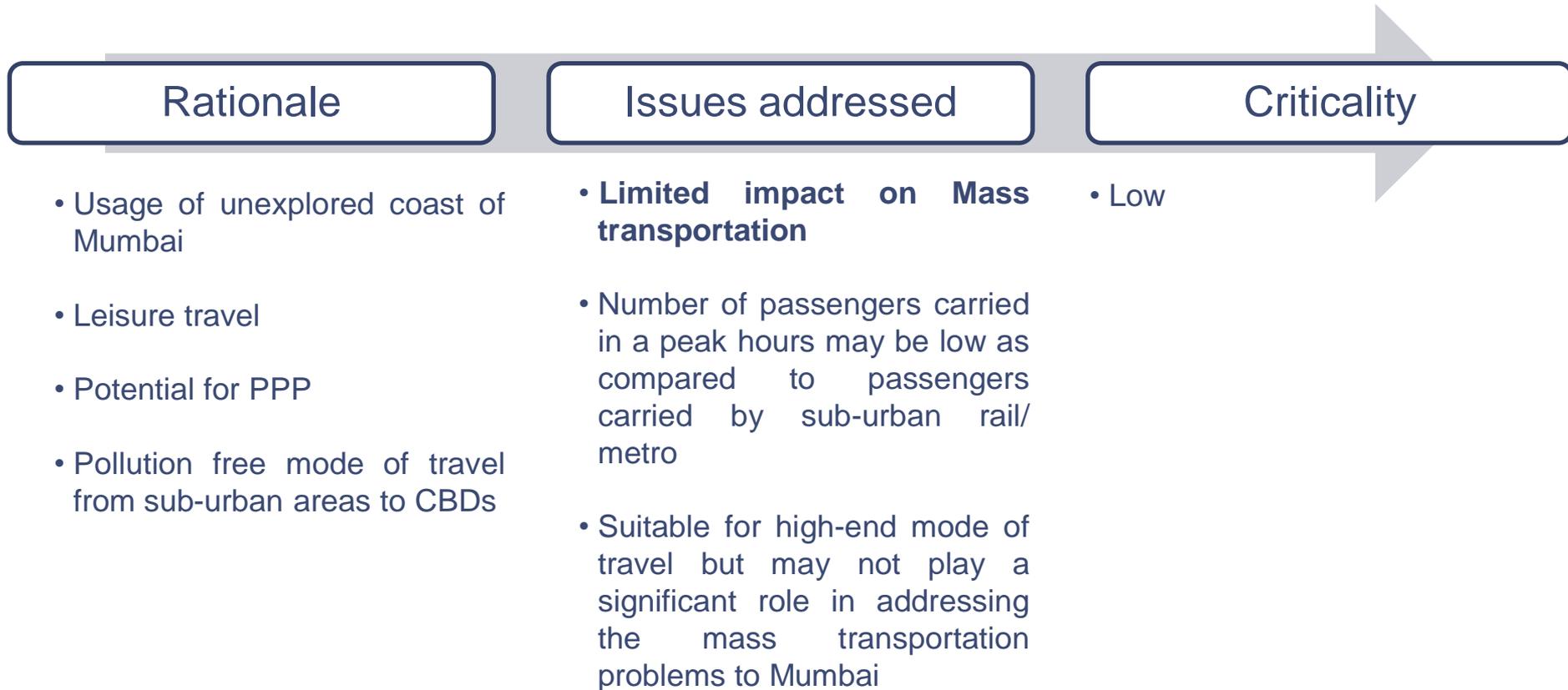
Key initiatives – MUIP (Parking spaces)



Key initiatives – Mono Rail



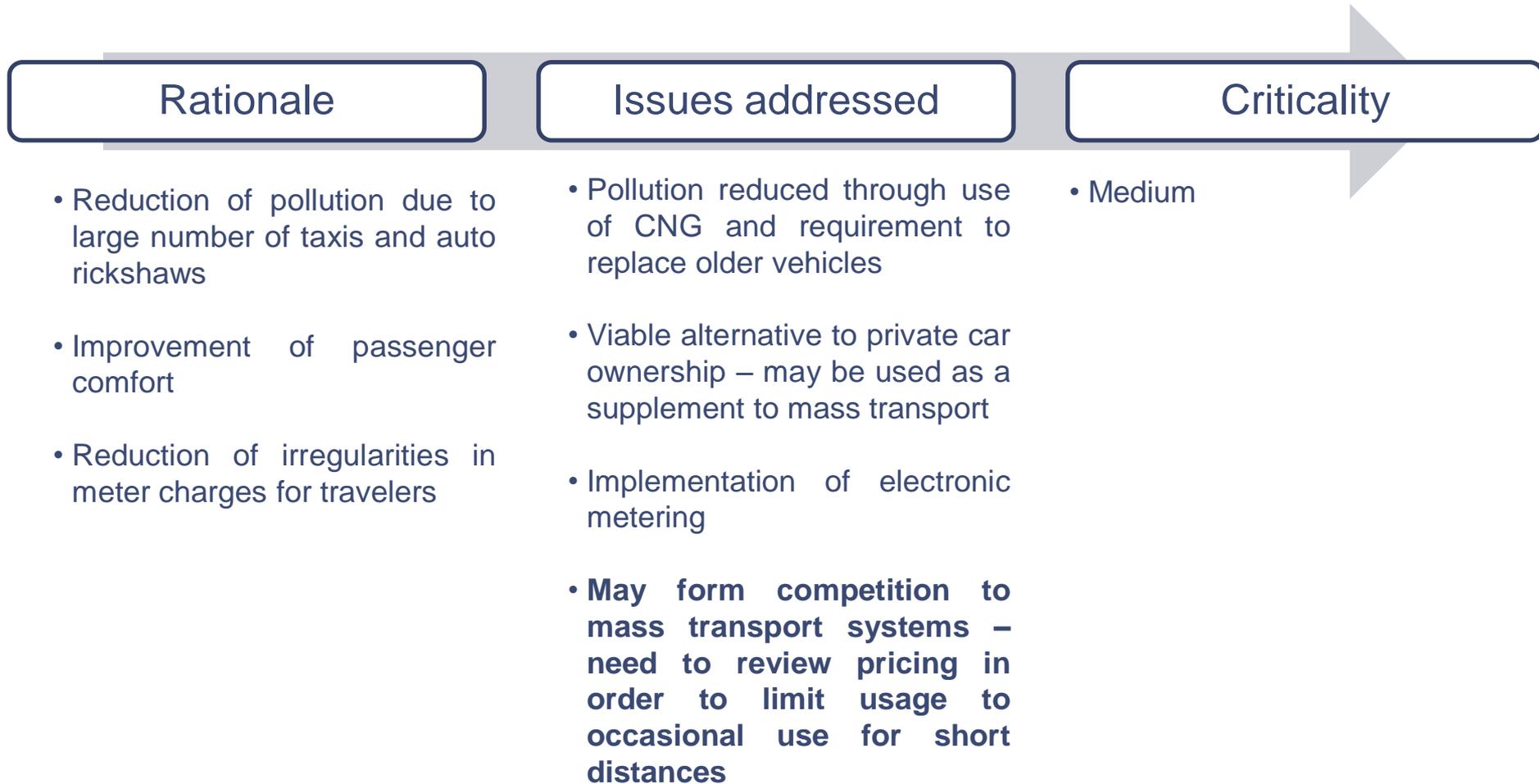
Key initiatives – Passenger Water Transport



Key initiatives – Improved Bus Transport

Rationale	Issues addressed	Criticality
<p>BRTS</p> <ul style="list-style-type: none">• Supplement linkage of areas through railway network etc.• Grade-separated high speed connectivity along arterial roads in new areas <p>City bus service</p> <ul style="list-style-type: none">• Connectivity to other forms of transport such as metro and suburban rail• Wider coverage of areas through mass transport	<p>BRTS</p> <ul style="list-style-type: none">• Complementary to suburban rail and metro• Comfortable road transport for long distances• Connectivity to new areas along arterial roads with relatively lower investment <p>City bus service</p> <ul style="list-style-type: none">• Alternative to private car, taxi and auto rickshaws• Smart card system for ticketing – may be possible to integrate ticketing with other modes	<ul style="list-style-type: none">• Medium – system is fairly efficient at present and only needs to be periodically upgraded to keep pace with growth in passenger traffic

Key initiatives – Improved Intermediate Public Transport



What we should aim to achieve

Short Term

- Addition to existing suburban rail capacity
- Improvement of commuter comfort in mass transport systems
- East-west connectivity through metro rail
- Increase in paid parking facilities – movement from roadside parking to dedicated multi-level car parks

Medium Term

- High-speed connectivity to CBD – Nariman Point on eastern and western routes
- High-speed road and rail connectivity to Navi Mumbai and surrounding mainland
- Metro rail connectivity to upcoming business areas
- Complementary development of transportation infrastructure
- User charges on private road transport to shift users to convenient public transport

Long Term

- Development of alternative urban hubs on the mainland
- Metro rail linkages through Mumbai Metropolitan Region
- Zoning of new developments to enhance commercial space along key routes

How do we achieve our aim

International city development strategies and applicability for Mumbai

Strategy	Applicability for Mumbai
Commercial/ residential development following transportation (Planned transportation system for cities with commercial zoning along transport corridors)	<p>This concept is applicable to new areas being developed in Mumbai Metropolitan region.</p> <p>As areas on the mainland are developed into commercial and residential hubs, a relook at existing zoning laws and a planned approach would limit the need for residents and employees in the new areas to commute long distances and would limit additional stress on transportation systems in the region.</p>
Congestion charges in the Central Business District	<p>This concept is applicable in the certain congested areas of Mumbai (like Nariman Point).</p> <p>However, the implementation of the concept would depend on the availability of alternate (and convenient) forms of transportation, including Metro rail and bus services.</p> <p>The revenue earned from such charges may be used to create a fund for continuous improvement and maintenance of mass transportation systems in Mumbai.</p>

How do we achieve our aim

International city development strategies and applicability for Mumbai

Strategy	Applicability for Mumbai
Restructuring of local authorities to streamline project planning and implementation	<p>The concept is applicable to Mumbai as the roles of agencies such as MMRDA, UMMTA and ULBs within the Metropolitan Region are to be refined.</p> <p>The MMRDA currently plays both planning and implementation roles, leading to conflict in independent monitoring of adherence to plans at the implementation stage. The structure of MMRDA, UMMTA and ULBs raise issues regarding mechanisms to transfer power, responsibility and accountability for projects.</p>
PPP in transportation systems	<p>This is applicable to Mumbai as a typical issue impacting project success is the mechanisms for private participation.</p> <p>Currently, various structures are being proposed for different projects, with varying degrees of success. A concerted effort to identify the key project features and map its suitability to a particular structure may be carried out to avoid issues such as lack of bidder interest.</p> <p>A transparent mechanism to involve prospective bidders in the project structuring process may prove to be beneficial to the project's success</p>

How do we achieve our aim

How others have achieved

Problem	Applicability for Mumbai	Actions taken	Learning for Mumbai
Implementation: London Congestion Charges			
<ul style="list-style-type: none"> • Excessive congestion due to private car traffic in the CBD • Road widening was not feasible due to existing buildings 	<ul style="list-style-type: none"> • Congestion experienced at Nariman Point due to car usage • Road widening not feasible due to existing buildings 	<ul style="list-style-type: none"> • Congestion charges implemented with the support of an elected mayor • Charges were limited to the critical areas, billing and collection was automated and penalties were enforced for defaulters • Revenue from the charges was specifically allocated towards improvement of alternate mass transport systems 	<ul style="list-style-type: none"> • Support from stakeholders, particularly elected representatives • Scope of implementation may be limited to critical areas, or a pilot project may be undertaken • Benefits of implementation should be shared with bearers of costs, and service quality delivered should be in keeping with user charges

How do we achieve our aim

How others have achieved

Problem	Applicability for Mumbai	Actions taken	Learning for Mumbai
O&M: London Underground			
<ul style="list-style-type: none"> • Service levels were suffering due to lack of government funds • Delays and lack of carrying capacity were key issues 	<ul style="list-style-type: none"> • Limited funds available with local government bodies - impacting maintenance of projects • Long term sources of funds required to maintain efficient operations and undertake timely maintenance as well as improvement activities 	<ul style="list-style-type: none"> • Two infrastructure companies were formed under PPP model • Funds contributed by the government, private developers and revenues from ticketing and retail • Single Government agency responsible for coordination • Service levels fixed with regard to availability of systems • Contract to be re-priced every 7.5 years 	<ul style="list-style-type: none"> • Establishing unified planning agency for transportation • Clear delineation responsibility for planning and execution • Financing to be undertaken in a shared manner • O&M concessions to be granted with strict performance norms • Pricing to be reviewed as system matures and traffic pattern changes

How do we achieve our aim

Mumbai - learnings from the past

Problem	Actions taken	Learning for Mumbai
<p>Space limitation within Greater Mumbai leading to overcrowding</p>	<ul style="list-style-type: none"> • Conceptualisation of Navi Mumbai • Responsibility for planning and development assigned to a single agency – CIDCO • Connectivity to Greater Mumbai initially restricted to road – plan to develop Navi Mumbai as an independent town • Suburban rail connectivity introduced subsequently due to low demand for the township and limited employment opportunities 	<ul style="list-style-type: none"> • Mass transport to be developed at initial stage of development of new areas – to act as driver of new growth • Need to establish variety of business and employment opportunities within new areas to reduce need for long-distance commute • Public transport to be viewed as social necessity rather than business activity – economic/ financial viability to be considered to decide the type/ mode of development

How do we achieve our aim

Mumbai - learnings from the past

Problem	Actions taken	Learning for Mumbai
<p>Linkage between Mumbai island city and mainland in order to expand city size and facilitate commuting</p>	<ul style="list-style-type: none"> • Suburban rail network extended to broader metropolitan region • Road linkages between Island city and mainland were developed at the northern end of the island city, away from the commercial hub - thus significantly increasing the commuting time • Trans-harbour link planned to connect central portion of eastern side of island to mainland – yet to be implemented 	<ul style="list-style-type: none"> • MTHL to have been developed on priority basis • Limited development on mainland side of planned trans-harbour link adversely affecting the financial viability of link • High project cost– government Viability Gap Funding may be necessary in order to reap socio-economic benefits to the planned suburbs • Need to consider rail linkage along with planned trans-harbour link in order to serve mass of commuters – high capacity of mass transport to enhance the residential development on mainland

How do we achieve our aim

Some international case studies

Strategy	Mumbai	Singapore	London	Shanghai
Implementation of Mass Transit (Metro for mass traffic)	<ul style="list-style-type: none"> Implemented on PPP mode Pricing as per existing suburban rail 	<ul style="list-style-type: none"> Implemented through corporatised government entities 	<ul style="list-style-type: none"> Constructed and owned by government entity Operated and maintained through PPP 	<ul style="list-style-type: none"> Constructed and owned by government entity

- Metro to be considered a social necessity and economic viability to be a key criteria for development of metro
- Issues regarding land, right of way, casting yard to be addressed upfront to reduce development timeframe
- Government to support the project as owner – with focus on development of overall city

How do we achieve our aim

Some international case studies

Strategy	Mumbai	Singapore	London	Shanghai
Developing Complementary modes of transport	<ul style="list-style-type: none"> • Bus and commuter trains competing along similar routes • Total capacity of each mode insufficient to cater to all commuters along a route 	<ul style="list-style-type: none"> • Bus routes supplement connectivity to long city roads, while metro is used for long-distance travel to key areas 	<ul style="list-style-type: none"> • Limited implementation • Underground (metro) and commuter rail used as long-distance mode of transport • Buses used for local travel 	<ul style="list-style-type: none"> • Limited implementation • Bus service extremely extensive • Metro service being developed as a long-distance alternative
Congestion pricing in central business district	<ul style="list-style-type: none"> • Not implemented 	<ul style="list-style-type: none"> • Electronic road pricing 	<ul style="list-style-type: none"> • Implemented in central London 	<ul style="list-style-type: none"> • Not implemented

- Integrated transport planning a key requirement
- Congestion pricing may be implemented subject to availability of convenient mode of public transport

How do we achieve our aim

Some international case studies

Strategy	Mumbai	Singapore	London	Shanghai
Development of new business hubs	<ul style="list-style-type: none"> • Development of Navi Mumbai • Substantial commuter traffic between island city and suburbs, indicating limited business and commercial opportunities in the latter • Heterogeneous profile of commercial activity 	<ul style="list-style-type: none"> • Port-based, logistics and other industries located in outer areas of city 	<ul style="list-style-type: none"> • Limited development – mainly expansion of business areas in central part of the city • Highly homogenous profile – approximately 85% of commercial activity comprises of the service industry (tertiary sector) 	<ul style="list-style-type: none"> • Numerous economic and technological development zones established, including Hongquiao, Jinqiao and Pudong

Focused approach can facilitate development of new CBD – development needs to be planned in a holistic manner - institutionalizing the planned development would be the key

How do we achieve our aim

Some international case studies

Strategy	Mumbai	Singapore	London	Shanghai
Ownership and operation of various modes of transport by single entity	<ul style="list-style-type: none"> • Not implemented 	<ul style="list-style-type: none"> • SBS Transit and SMRT Corporation operate bus as well as Metro services along specific routes • Smart card payment implemented across all modes of local transport 	<ul style="list-style-type: none"> • Transport for London is the integrated body responsible for all modes of transport • Smart card payment implemented across all modes of local transport 	<ul style="list-style-type: none"> • Ownership and operation by various bodies under umbrella of Shanghai local government • Smart card payment implemented across all modes of local transport

To be a world class city, we need to move in direction of world-class cities.....

How do we achieve our aim

Strategies for Mumbai

Strategy	Challenge addressed	Impact	
		Short Term	Long Term
Mass transport over long distances to be rail – based (Metro)	<ul style="list-style-type: none"> • Inability to increase road width in developed areas • Reduction in average commuting time • Provision of comfortable alternative to private car transport 	<ul style="list-style-type: none"> • Reduction in overcrowding in competing mass transport systems • Reduction in road traffic • Reduction in commuting time 	<ul style="list-style-type: none"> • Movement of car owners from private to public transport • Development of commercial hubs around metro stations • Enhance the viability of rail based mass transport systems • Reduction in number of new cars added to the city • Pollution due to vehicular traffic reduced • Improved tourism

How do we achieve our aim

Strategies for Mumbai

Strategy	Challenge addressed	Impact	
		Short Term	Long Term
Bus system to complement rail transport	<ul style="list-style-type: none"> • Access to metro stations to be facilitated • Limit impact of metro on existing bus services 	<ul style="list-style-type: none"> • Increase in usage of metro system due to enhanced access • Reduction of congestion on arterial roads due to reduction in long-distance bus transport – bus mainly being feeder to metro/ sub-urban rail 	<ul style="list-style-type: none"> • Movement of car owners to bus services in order to access metro • Ability to raise rates for luxury bus services as demand increases, thereby improving revenues • Complimentary mode of transport • Improvement of bus services, leading to added attractiveness for commuters • Reduction in new car transport to city

How do we achieve our aim

Strategies for Mumbai

Strategy	Challenge addressed	Impact	
		Short Term	Long Term
Congestion pricing in central business district	<ul style="list-style-type: none"> • Inability to increase road width in developed areas • Reduction of new addition of fleet of cars • Creation of road fund to facilitate improvement of road infrastructure 	<ul style="list-style-type: none"> • Controlled vehicular movement • Increased awareness of alternate modes of transport 	<ul style="list-style-type: none"> • Movement of car owners from private to public transport • Reduced journey time • Lower fuel consumption. • Reduced accidents • Reduction in number of new cars added to the city • Better environment • Road infrastructure fund for maintenance of city roads • Increased business efficiency by speeding up the movement of goods and people.

How do we achieve our aim

Strategies for Mumbai

Strategy	Challenge addressed	Impact	
		Short Term	Long Term
Development of new business hubs	<ul style="list-style-type: none"> • Population dispersal • Linear commuting pattern into and out of commercial hub at southern end of island 	<ul style="list-style-type: none"> • Limited impact on overcrowding in mass transport 	<ul style="list-style-type: none"> • Residential development around business hubs leading to reduced commuting time and distance • Reduced crowding in mass transport systems and road traffic • Increased viability of transportation systems in suburban areas • Reduced need for measures such as congestion pricing and high parking rates in current business district

How do we achieve our aim

Strategies for Mumbai

Strategy	Challenge addressed	Impact	
		Short Term	Long Term
Capacity building of implementing agencies – shift in focus to service levels and total cost of ownership	<ul style="list-style-type: none"> • Need for regular repairs and maintenance leading to high operating cost • Repeated bid processes for works contractors 	<ul style="list-style-type: none"> • Effort and time investment in evaluating long-term cost for proposals submitted • Increased usage of new technologies • May lead to slightly higher capital cost – but the same is to be viewed against economic benefits and reduced maintenance cost 	<ul style="list-style-type: none"> • Reduced O&M costs • Reduced inconvenience to commuters due to ongoing works • Longer life of assets leading to reduced need for replacement • Improved capacity of implementing agencies leading to selection of right technologies and faster and efficient implementation of projects

Implementation Strategies

Short term strategies

- **Conceptualisation**

- Proritise the identified projects – high priority to projects that address the problem of mass transportation

- **Implementation**

- Drilling down of business plan to regional level and institutionalizing the same
- Set accountability for priority projects
- Citizen awareness programs for priority projects – communication on need for projects and benefits to the affected citizens
- Maintenance, improvement and optimisation of existing transportation infrastructure

- **Operation**

- Enforcement of service quality norms for construction projects
- Enquiry into lack of service in previous projects and initiation of proceedings to penalise defaulting parties
- Enhancement of activities of specialised bodies such as UMMTA

Implementation Strategies

Long term strategies

- **Conceptualisation**

- Planning activity to include future needs such as environmental improvement through low emission transport
- New areas to be developed as self-sustaining townships, with minimum daily commuting required between them
 - ✓ Coordinated development of transport and commercial/ residential areas
- Review and update of transportation plan to reflect needs of the region – inclusion of newly developing areas in plan
- End-to-end planning of high priority projects
 - ✓ Provision of road/ rail linkages on either sides, time
 - ✓ Land bank to be created for casting yards
 - ✓ Time bound commitment for obtaining clearances for various projects
 - ✓ Time bound commitment for shifting of utilities
 - ✓ Project cost to be frozen prior to issue to bid documents – all critical project components may be included to ensure comprehensive of the cost
 - ✓ Consultation with private players prior to release of bid documents

Implementation Strategies

Long term strategies

- **Conceptualisation**

- Coordinated planning for all forms of transportation
 - ✓ Accountability to be established between planning and implementing agency (including ULBs)
- Establishment of guidelines for planning and approval of projects
 - ✓ Adherence to overall plan
 - ✓ Indication of funding sources
 - ✓ Commitment to project responsibilities by single government agency
- Development of model documents and prescribed process for bidding out of projects
 - ✓ To be done after appropriate consultation with private players
 - ✓ Separate documents for EPC and PPP projects
 - ✓ Documents to have adequate flexibility to incorporate the dynamics of the projects
 - ✓ Public views to be obtained prior to finalisation of documents
- Zoning and planning regulations to be reviewed in light of future development

Implementation Strategies

Long term strategies

• Implementation

- Task force to be formed for each “high priority project” to with sole agenda of implementing the identified project through PPP/ EPC. The task force may obtain all clearances for the project and should not be dismantled till the time of project commencement
- Enhancement of implementation capability at the ULB level
- Transportation/ urban development fund to be established for implementation of transportation projects in developing and less developed areas as well as viability gap funding of mega-projects
- Mechanism to be established for consultation with potential private bidders prior to finalisation of project packaging and development model
- Technology selection for projects to consider total cost of ownership rather than initial project implementation cost
- Increased FSI at Metro stations for commercial spaces
 - ✓ To enhance viability
 - ✓ Reduce viability gap funding
 - ✓ Motivate use of metro – reduced reliance on road transport

Implementation Strategies

Long term strategies

- **Operation**
 - Single entity responsible for operation of all modes of transport. Annual performance report of the agency to be made public
 - Fund to be established for funding of initial stage of operations for projects (in case of insufficient revenue generation to cover operating costs) – fund may be replenished through contribution from revenue at later stages of operation
 - Centralised review of projects implemented by various agencies and corrective actions to be taken

Financing Strategies

- Focus on private participation
 - **Assessment of options for PPP structuring based on merits of the project**
 - **Amount and disbursement mechanism for viability gap funding to be pre-defined**
- Focus on utilisation of funds from local development to finance infrastructure projects
 - **Funds collected through betterment levies, impact fees and development charges to be allocated to dedicated infrastructure development fund**
 - **Fund may be administered by a dedicated state-level or local entity**
 - **Funding of projects may be carried out on the basis of strategic requirement of the project as well as likely economic, social and financial returns**
 - **Establishment of dedicated project account for major developments with identified sources of funds to the account**
- Establishment of cell for assistance to local bodies in conceptualisation, planning and development of documentation for accessing funds from international agencies and lenders
- Development of financing through municipal bonds in the long term
 - **Credit rating of municipalities within MMR fairly good – ranging from AA to A-**
 - **Purpose of raising funds through bonds required to be defined upfront to increase attractiveness**
- Pooled financing by multiple local bodies distributes risk across projects implemented by more and less developed municipalities –increased attractiveness for lenders and investors
 - **May be particularly suitable for large multi-ULB projects and programmes**

Quick Wins

- Traffic engineering to improve utilisation of existing transportation infrastructure
- Improvement of suburban railway stations and bus terminus
 - Guided passenger flow
 - Signages
 - Integrated ticketing through smart card
 - Maintenance and improvement of passenger amenities
 - Cleanliness and beautification
- Refurbishment of existing buses and local trains
- Checking of metering in taxis and auto rickshaws and penalisation for faulty meters – citizen awareness on process for complaints regarding faulty/ tampered meters
- Citizen awareness program on ongoing improvement and development efforts
 - Involvement of citizens through response centres to report issues, queries and suggestions
- Enforcement of strict quality norms in road projects
- Enhancing scope of activities of planning and co-ordinating agencies such as UMMTA
- Development of model documents and prescribed process for bidding out of projects
- Assignment of ownership of the regional transportation plan and defining responsibility for tracking implementation of the projects as per the plan

Long-Term Resolutions

- Co-ordinated planning for all forms of transport – multi-modal approach to be followed
- Establishment of guidelines for planning and approval of projects
- Establishment of timelines for land banking and regulatory approvals for planned projects – to be included in project planning
- Zoning and planning regulations to be reviewed in light of future development
- Task force to be established for large and strategically significant projects
- Establishment of transportation/ urban development fund for financing of projects as well as use of other financing sources
- Institution of mechanism for agreement on project cost and components in consultation with concerned stakeholders
- Change of approach for private developer selection from “lowest capital cost” to “total cost of ownership”
- Movement towards an integrated approach for management of all modes of transport

THANK YOU