

2016

FRA Rail Program Delivery

Meeting

Building a Funding & Financing Strategy Plan for Mega / Complex Projects

Mark E. Gander, AICP, CRE

Robert L. Peskin, PhD, M.ASCE

Agenda

- What Do We Mean by Complex/Mega Projects?
- Six Principles to Guide Project Delivery
- 10 Steps for Successful Projects
- Q&A

Putting Pieces Together

Federal vs. Non-Federal
State/Local and Private Sector

Innovative vs. Traditional
Project Delivery

Structure of Delivery:
Capital & Operations

- Timing
- Yield
- Viability
- Benefits



Definitions

Funding & Financing

▶ Funding

- ▶ Provision or acquisition of money resources for a specific purpose, such as building a bridge or purchasing rolling stock.

▶ Financing

- ▶ Managing and leveraging financial resources, such as investing funds and distributing money, for a specific purpose or need.

Mega / Complex Projects

- ▶ Mega Projects
 - ▶ Project with funding requirement ~ \$500M

- ▶ Complex Projects
 - ▶ Project with multiple federal, local, and private stakeholders (multiple jurisdictions)
 - ▶ Multimodal
 - ▶ Complex project delivery methods
 - ▶ Long timeframe from project initiation to completion

Examples of Complex/Mega Projects

- ▶ Tappan Zee Bridge
- ▶ Denver Union Station
- ▶ Transbay Transit Center
- ▶ Empire Station Complex
- ▶ LaGuardia Airport
- ▶ Gateway and Portal Bridge
- ▶ All Aboard Florida
- ▶ California High Speed Rail
- ▶ Capital Metro Project Connect, Austin
- ▶ CREATE Program
- ▶ 7 Line Extension
- ▶ FS Links Hyperloop
- ▶ Texas High Speed Rail
- ▶ Dulles Metrorail
- ▶ Portland Streetcar Central Loop Extension
- ▶ Sydney Metrorail/Bangaroo Station

Six Principles

Six Principles

1. Transformational physical design
2. Risk management
3. Building a funding and financing strategy starts early
4. Stakeholder collaboration
5. Asset optimization
6. Recognize and leverage the surrounding market forces

1. Transformational Physical Design

- ▶ Recognizes the inherent benefit of place-making/city building
- ▶ “Gets the juices flowing”
- ▶ Solves major capacity problems

TransBay Transit Center



Insert photo credit re: TransBay Project Description: TransBay Transit Center: Key Investment in San Francisco's Future as a World Class City (pg 6)

- ▶ Neighborhood transformation: TOD
- ▶ Design-Build, Design-Build-Finance-Operate-Maintain, P3
- ▶ Funding: ARRA funds, land sales in the district, TIFIA loans, TIF revenues, Mello-Roos Special Assessment District
- ▶ Connectivity: centralize the region's transportation network and streamline access to transportation networks

2. Risk Management

- ▶ THE fundamental issue
- ▶ “The glue that holds the project together”
 - ▶ While this presentation is about financing/funding, it is also about project delivery and risk management.

Tappan Zee Bridge



Rendering by Tappan Zee Constructors LLC and HDR Engineering Inc.

- ▶ Contractor moved largest floating crane in the world from the West Coast, enabling long spans on approaches ... accelerated schedule, reduced cost and environmental impacts.
- ▶ 24 lane miles of deck precast
- ▶ Off-site pre-assembly of superstructure, barging to the super crane
- ▶ Project Cost \$3.98 Billion
- ▶ Mass-transit ready, with space for Bus Rapid Transit

3. Building a Funding and Financing Strategy Starts Early

- ▶ Reveals new revenue streams (value capture)
 - ▶ Opportunities
 - ▶ Constraints

7 Subway Line Extension



Field Condition August, 2016

- ▶ Transportation investment is the key to unlocking development potential at Hudson Yards
- ▶ 34 Street Hudson Yards station is anticipated to become the busiest single line station in NYC once Hudson Yards is fully developed
- ▶ \$2.4B. Funding provided by City of New York via the Hudson Yards Infrastructure Corporation and Hudson Yards Development Corporation; TIF/PILOT
- ▶ Hudson Yards: 28 acre mixed use real estate development that is jointly planned, funded and constructed by NYC, NYS and the MTA

4. Stakeholder Collaboration

- ▶ By identifying who is responsible for what at the various stages in the project delivery process
 - ▶ Can identify the stakeholders, funding partners
 - ▶ Scope of their involvement

Gateway & Portal Bridge Project



Gateway & Portal Bridge Project cont'd



<https://nec.amtrak.com/content/portal-bridge-replacement-project>

- ▶ USDOT declares Gateway program is of national significance
- ▶ Portal South Bridge is proposed as part of Gateway Program
- ▶ Build the tunnels, then complete overall Gateway Program
- ▶ Salvage/Reuse from ARC
- ▶ Tie into Penn Station's existing tracks
- ▶ Funding and financing from
 - ▶ USDOT (committed)
 - ▶ Traditional bonds
 - ▶ TIFIA, RRIF, P3
 - ▶ User fees
 - ▶ Value Capture: TIF, Development rights

5. Asset Optimization

- ▶ Balancing public vs. rentable space to provide the private sector with opportunities for sufficient return on investment(ROI).
- ▶ Forces at play address much bigger issues/concerns than the immediate 'purpose' of the project.

CREATE Program



Photo by Mark Llanuza 8/2016

63rd and State Flyover www.createprogram.org

- ▶ Metra, Amtrak, and the nation's freight railroads:
 - ▶ USDOT (FHWA & FRA)
 - ▶ IDOT
 - ▶ CDOT
 - ▶ 6 freight rail carriers
 - ▶ 2 switching railroads
 - ▶ Amtrak
 - ▶ Metra
- ▶ \$4.4 billion Public-Private Partnership (PPP)
- ▶ Primarily design-bid-build to increase the efficiency of the region's passenger and freight rail infrastructure
- ▶ Partnership between USDOT, the State of Illinois, City of Chicago,

6. Recognize and Leverage Surrounding Market Forces

- ▶ Recognize the inherent benefit of “place making”
- ▶ Examples: Denver Union Station, Transbay Terminal, Gateway, Empire/Moynihan Stations.

Sydney Metro Project – Barangaroo Station

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Photo credit: Robert L. Peskin

- ▶ Sydney Metro will extend metro rail from Sydney's booming North West region, includes seven new modern metro stations
- ▶ \$8.3B Sydney Metro Northwest
- ▶ access to the Walsh Bay Arts and Culture precinct as well as providing easy access to the development's public, residential, commercial and entertainment areas
- ▶ Connects to new ferry hub
- ▶ Provides kiss-and-ride and taxi bays

10 Steps for Successful Complex/Mega Projects

10 Steps for Successful Complex/Mega Projects

1. Perform due diligence/situational assessment
2. Financial sketch planning
3. Bring in financial advisors & institutions
4. Preparing for the Federal grant process
5. Select project delivery mechanism
6. Always look ahead to development of an eventual business plan
7. Understand the underlying problem to be solved
8. Get the right people in the room
9. Recognize the types of infrastructure investment to which private sector will favorably respond
10. Realize that Transportation Investment is a strategic enabler that unlocks development potential

1. Perform due diligence / situational assessment

- ▶ Define capacity and capabilities
- ▶ Funding commitments
- ▶ Stakeholder and funding partner interviews

Dulles Metrorail



<http://www.dullesmetro.com/about-dulles-rail/what-is-dulles-metrorail/>

- ▶ Sponsor is Metropolitan Washington Airports Authority
- ▶ Cost \$5.7B
- ▶ Design-build project delivery
- ▶ Local partners are leveraging special assessment districts and revenues through a TIFIA loan to accelerate the project construction timeline. TIFIA Assistance: \$1.9B
- ▶ The Project will be a catalyst for transit-oriented development in Tysons Corner, one of the largest employment centers in Northern Virginia.

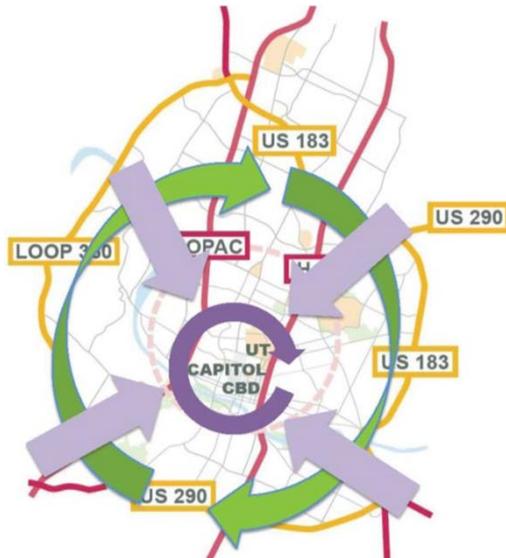
2. Apply financial sketch planning

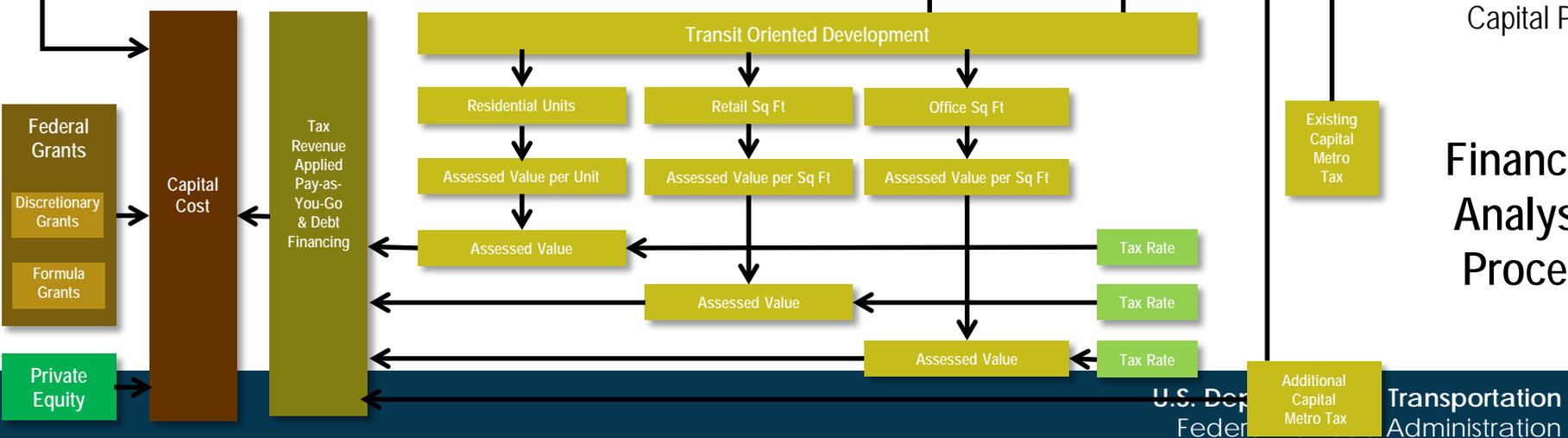
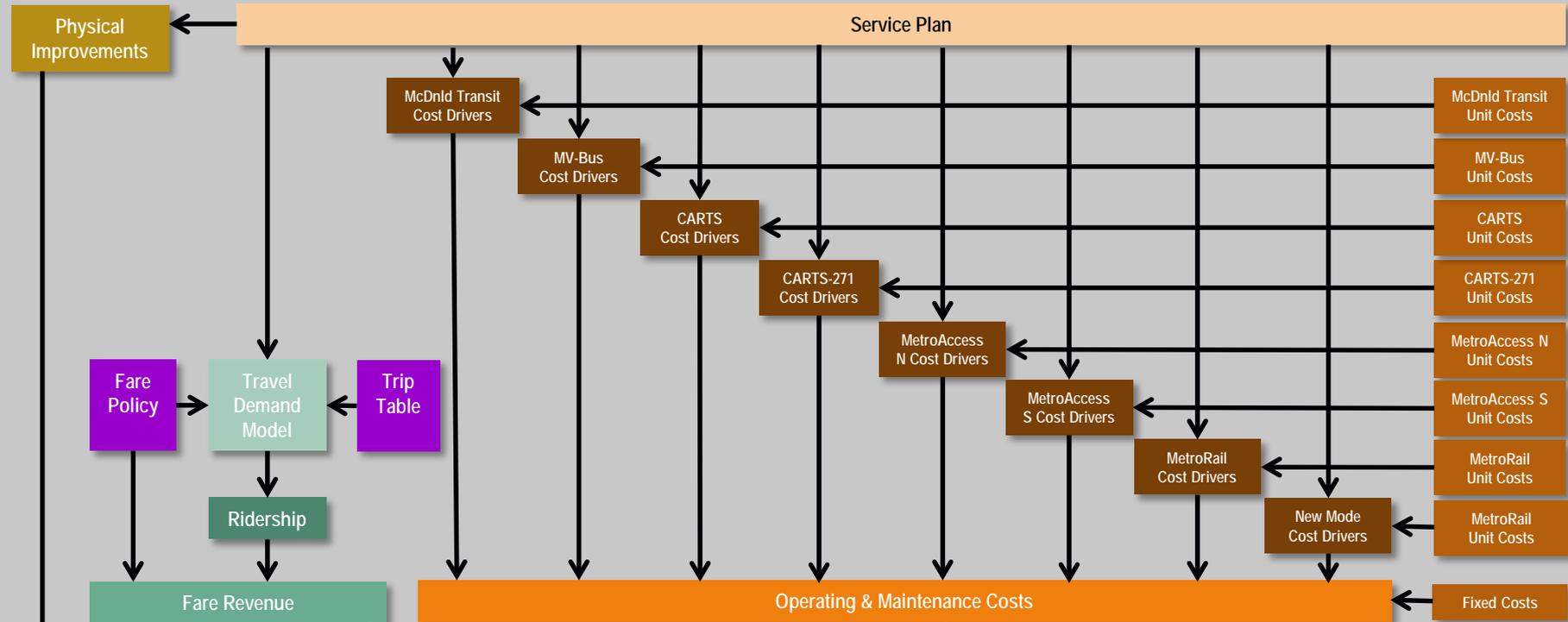
- ▶ Focus on the basics
- ▶ Reveal opportunities and underlying weaknesses

Capital Metro Project Connect



- ▶ High-capacity transit investments and enhancements within and to the Central Core
- ▶ Sketch planning will address “typical year” funding needs, focusing on putting dimension on new dedicated funding sources and value capture yields





Operating Plan
Capital Plan

Financial
Analysis
Process

3. Bring in financial advisors & institutions

- ▶ Engage financial advisor
- ▶ Explore alternative “deep pockets”
- ▶ Understand capital markets for real estate and infrastructure investments

FS Links - Hyperloop One



[Hyperloop One](#)

- ▶ 30 min link from Stockholm to Helsinki & HEL, or 10 minutes from city centers to airports, enables transformational economic development of post-Nokia/MS city.
- ▶ Domestic Hyperloop connections in Sweden and Finland are viable stand-alone projects
- ▶ “Mini UN” of international finance
- ▶ Travel time savings & labor market effects
- ▶ Super region job creation

4. Prepare for the federal grant process

- ▶ Understand the path by each agency and resource
- ▶ Decide whether to pursue
- ▶ Integrate funding and financing in the NEPA process

Portland Streetcar – Central Loop Extension



© AECOM 2012 Photography by Dan Haneckow

- ▶ 3.5 mile extension of the existing Portland Streetcar System
- ▶ Small Starts Program: The Loop Project marks a new era in the transit industry as the first streetcar project to receive funding from the FTA's Small Starts program.
- ▶ 28 new streetcar stops
- ▶ Retrofit of tracks and overhead-catenary across the NRHP-eligible Broadway Bridge.

5. Select project delivery mechanism

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- ▶ A complex and long process
- ▶ Start early
- ▶ Test alternatives and Value for Money

Continuum of Project Delivery Mechanisms



Public Sector	Public Private Partnerships				Private Sector
Civil works DBB DB Service contracts	Management and operating contracts	Leases	Concessions BOT DBO DBOF DBOFM	Joint ventures Partial sales	Sales/ divestitures
Public ownership and finance			Mix		Private ownership and finance
Public operations	Mix of public and private operations				Private operations

Key: DBB = design-bid-build, DB = design-build, BOT = build-operate-transfer, DBO = design-build-operate, DBOF = design-build-operate-finance, DBOFM = design-operate-finance-maintain

6. Look ahead to development of eventual business plan

- ▶ An evolving, “living/breathing” document
- ▶ Establishes framework, objectives, guidelines, forecasts, and implementation steps

California High Speed Rail



<http://www.hsr.ca.gov/Newsroom/Multimedia/images.html>

- ▶ New exclusive ROW
- ▶ Completes a missing transportation link
- ▶ First Segment: Estimated capital cost: \$6 billion (2014 USD)
 - ▶ California Proposition 1A bond proceeds: \$2.6 billion
 - ▶ Federal funds: \$3.3 billion
 - ▶ Cap and Trade funds as needed
- ▶ Design-Build project delivery: transfer significant design-phase cost and schedule risk to the design-build contractor
- ▶ Starter segment planned as proof of design concepts

7. Understand the underlying problem to be solved

▶ Example: LaGuardia Airport

- ▶ Expansion required to increase flight operations and enhance customer experience
- ▶ Landing fees are the primary source of revenue
- ▶ Increasing flight operations increases landing fees
- ▶ Airplane maneuvering on the ground limited flight operations
- ▶ Providing more room reduces constraints for airplane maneuvering
- ▶ Pushing terminal away from runways provides more room

LaGuardia Airport



Via [Governor Cuomo/Flickr](#)

- ▶ The transformational component is increasing airplane circulation – planes have more space
- ▶ Moves the terminal closer to the expressway
- ▶ Yields increased capacity, private investment.
- ▶ \$4B project

8. Get the right people in the room

- ▶ Assignment of risks
- ▶ Funding responsibilities
- ▶ Ownership/Buy-in
- ▶ Team formation

Empire Station Complex



Moynihan Train Hall renderings

Photo: [courtesy of governor's office](#)

- ▶ Project Cost \$3 billion
- ▶ Governor Cuomo abandons the idea that saving Penn Station means tearing down MSG.
- ▶ Smaller scale fixes to attract the private sector:
 - ▶ Bigger footprint, better wayfinding
 - ▶ Make 33rd Street Bike/Ped only
 - ▶ Rebuild connecting subway station.
- ▶ Development coordinates with plans to increase the number of tracks and train platforms through the Gateway Project

9. Recognize types of infrastructure investment to which private sector responds favorably

- ▶ Clear and straightforward
- ▶ Access Improvements
- ▶ Connections

All Aboard Florida



<http://www.miamiherald.com/miami-dade/article>

- ▶ \$1.5B rail operation and real estate program bringing TOD to Florida cities
- ▶ Project Delivery: Design-Build-Finance-Operate-Maintain
- ▶ Private-financed and funded rail operation and real estate program with significant revenue generation to be used to partial pay debt financing.
 - ▶ RRIF loan
 - ▶ USDOT Private Activity Bonds (PAB)
- ▶ No ongoing taxpayer subsidies

10. Realize transportation investment is a strategic enabler that unlocks development potential

- ▶ What creates value?
 - ▶ Accessibility
 - ▶ Mobility
 - ▶ Density and Design
 - ▶ Proximity
 - ▶ Agglomeration/Clustering

Denver Union Station



© AECOM 2014 Photography by Robb Williamson

- ▶ \$500M Public Transportation Infrastructure Project
- ▶ Special assessment district representing the on-site master developer:
 - ▶ Finance: receives FTA and FHWA funds, and federal TIFIA and RRIF loan
 - ▶ Project Delivery: Design Build
 - ▶ Joint Development: receives joint development land payments made by the developer
- ▶ Risk Mitigation
 - ▶ Construction cost subject to a guaranteed maximum price
 - ▶ Capital program financing did not depend on ridership projections or user fees
 - ▶ City's moral obligation guarantee mitigated the Tax increment revenue to repay the RRIF loan

Denver Union Station cont'd



Photography by Robert L. Peskin

- ▶ Moving the LRT out to the freight corridor was the most radical change from the original master plan
- ▶ This enabled every other transit/rail component to move as well, bringing the train shed above ground and (critically) unstacking the joint development from on top of the transit elements

Original 2004 Master Plan

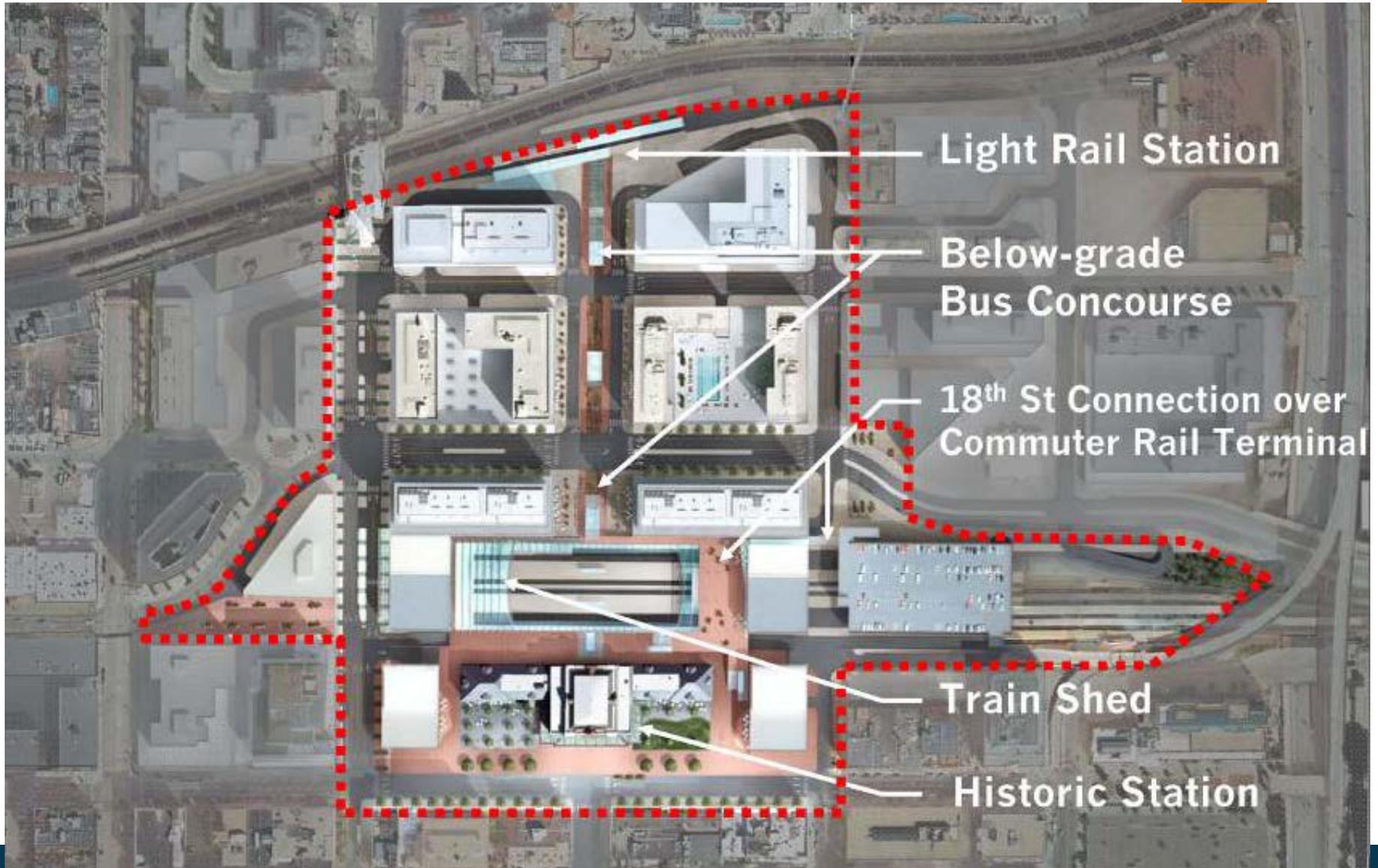
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- ▶ All transit elements underground:
 - ▶ Green = LRT
 - ▶ Blue = Amtrak and commuter rail
 - ▶ Yellow = bus terminal
- ▶ On-site joint development stacked on roofs of underground transit structures.



Revised Master Plan (Constructed)



Thank you

mark.gander@aecom.com

robert.peskin@aecom.com

6 Principles

Principle		Large Scale Project	Medium Scale Project	Small Scale Project
1	Transformational Physical Design	●		
2	Risk Management	●	●	●
3	Building a Funding and Financing Strategy Starts Early	●	●	
4	Stakeholder Collaboration	●	●	●
5	Asset Optimization	●		
6	Recognize and Leverage the Surrounding Market Forces	●	●	

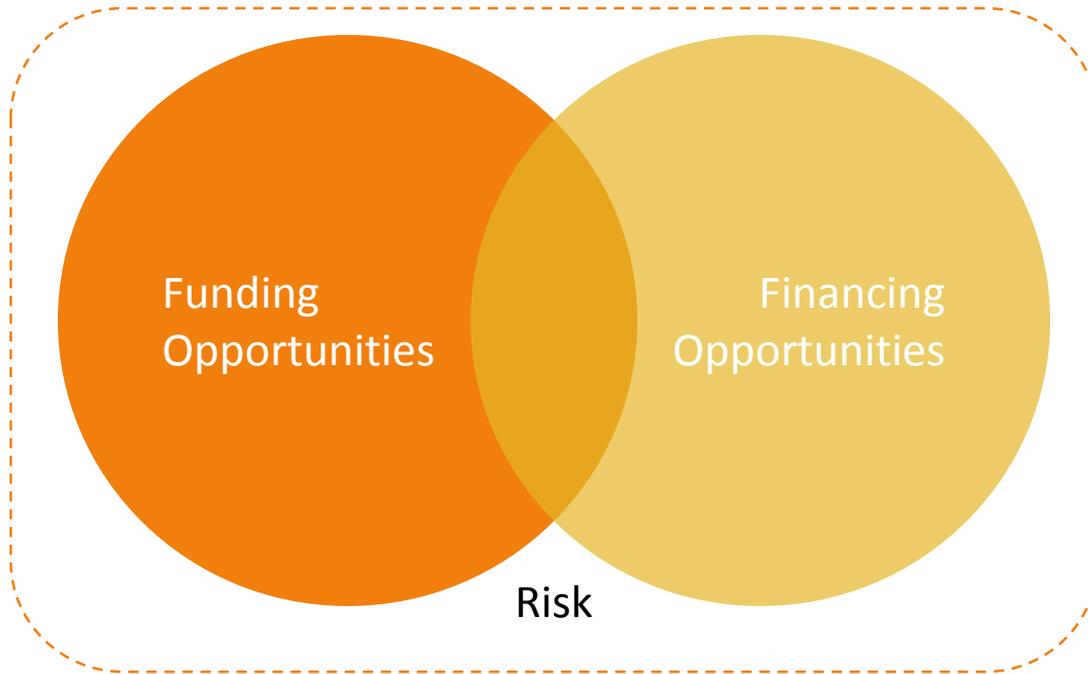
Innovative Ideas – Project Delivery

Less ← **Extent of Private Sector involvement** → Greater

Public Sector	Public Private Partnerships				Private Sector
Civil works DBB DB Service contracts	Management and operating contracts	Leases	Concessions BOT DBO DBOF DBOFM	Joint ventures Partial sales	Sales/ divestitures
Public ownership and finance			Mix		Private ownership and finance
Public operations	Mix of public and private operations				Private operations

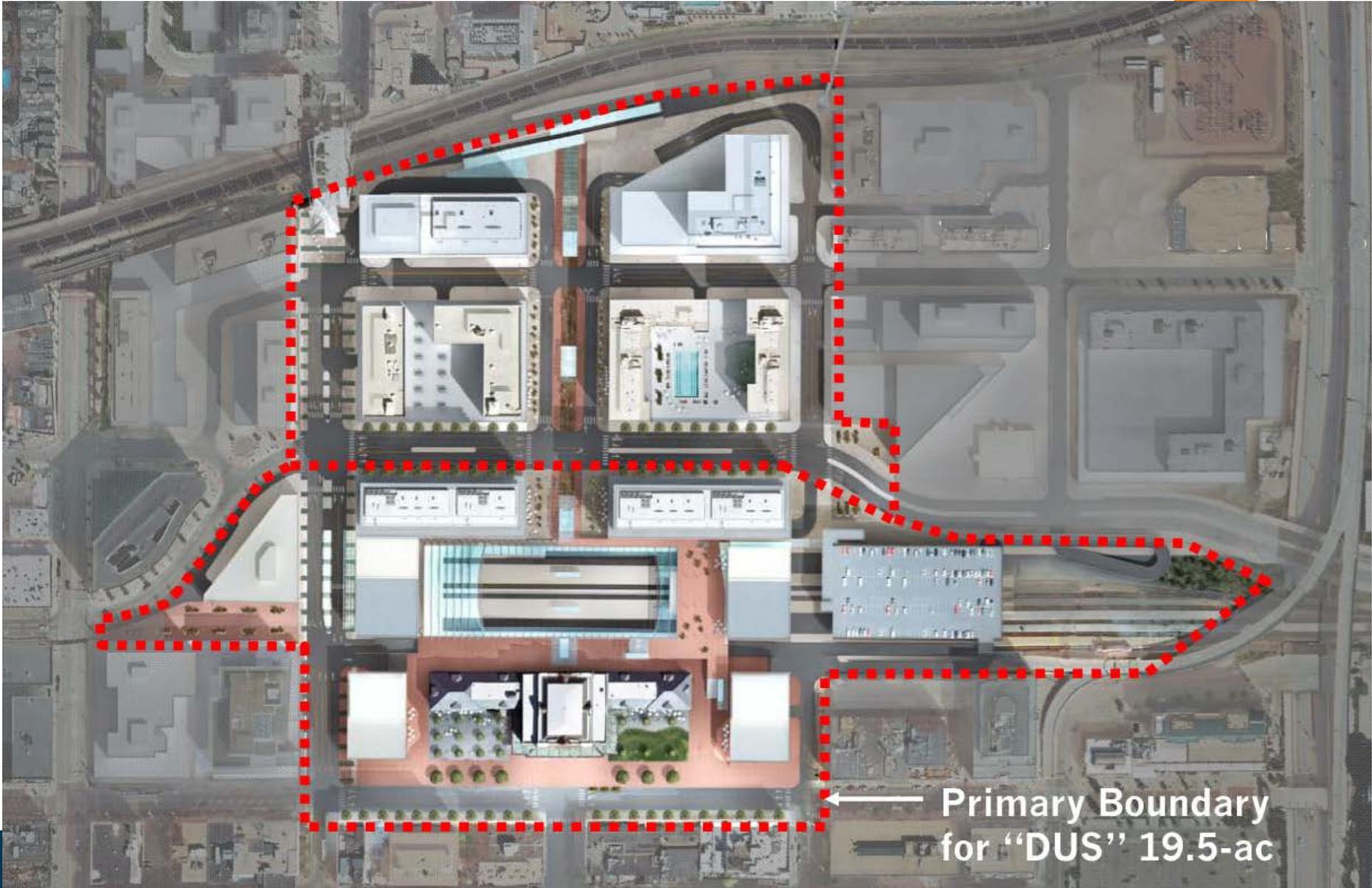
Key: **DBB** = design-bid-build, **DB** = design-build, **BOT** = build-operate-transfer, **DBO** = design-build-operate, **DBOF** = design-build-operate-finance, **DBOFM** = design-operate-finance-maintain

Managing Risk



Examples of Complex/Mega Projects

Revised Master Plan (Constructed)



← Primary Boundary for "DUS" 19.5-ac

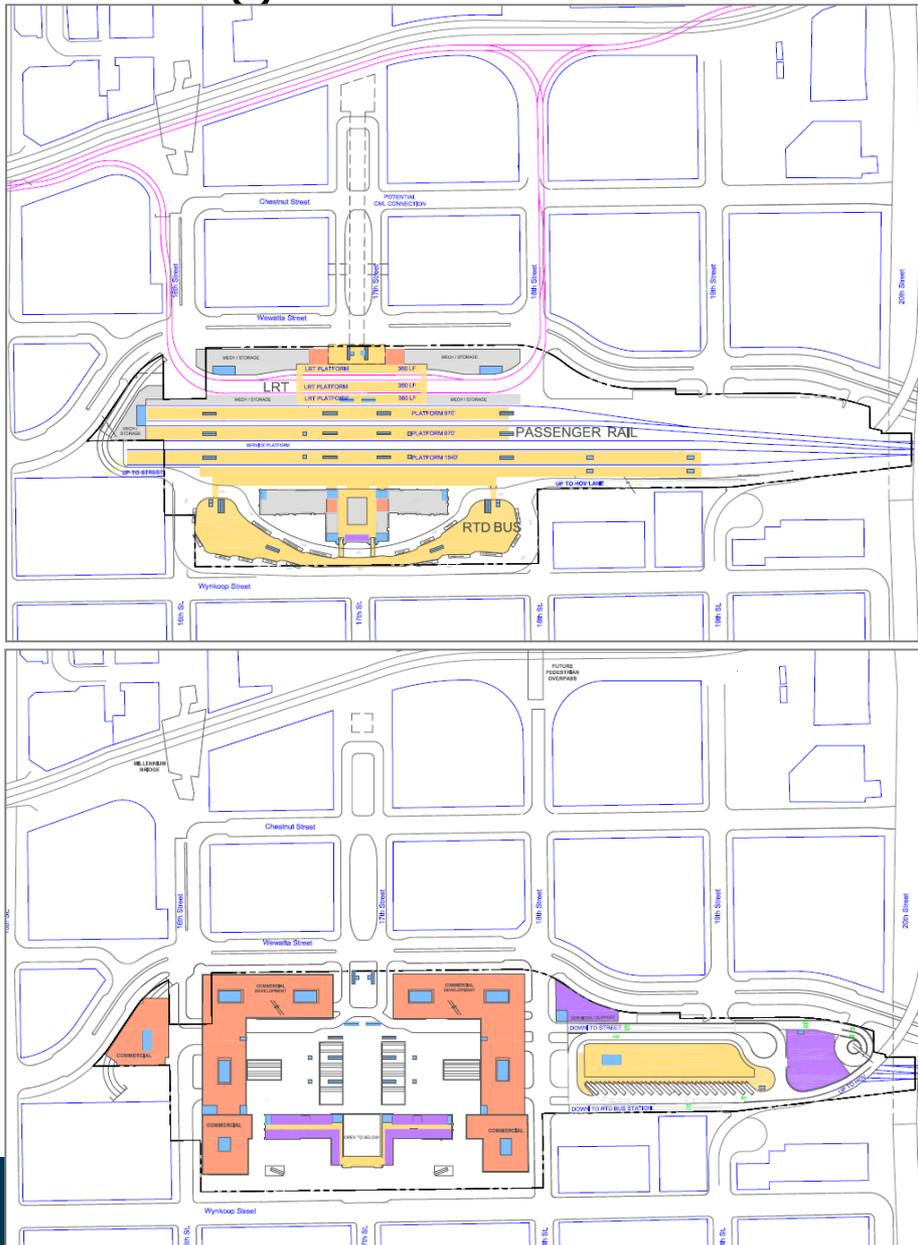
Denver Union Station



Photography by Robert L. Peskin

- ▶ Moving LRT did not create developable land:
 - ▶ Actually shrank the devt footprint within the RTD site
 - ▶ The train shed occupies the surface of where the LRT and pax rail would have been underground.
- ▶ Development benefits of moving LRT:
 - ▶ Extend the multimodal station footprint out to the CML along new 17th street, bringing the devt north of Wewatta (and thus outside the RTD ownership site) into the station "zone"; this expanded the perceived station/TOD district from RTD's 19.5 acres to the 40 acres universally cited today (and on which the TIF district is based)
 - ▶ Unstack the modest 1.35 million sf of on-site joint development
 - ▶ Fitting it into terra firma, making it buildable alongside and simultaneous with the transit program
 - ▶ This allowed DUS to spearhead of the recovery in central Denver.

Original 2004 Master Plan



- ▶ All transit elements underground
- ▶ On-site joint development stacked on roofs of underground transit structures.
- ▶ Note: the general public/transit garage over the tracks was dropped from the plan.

Texas High Speed Rail – Dallas to Houston HSR

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<http://www.texascentral.com/project/>

- ▶ Texas Central High-Speed Railway (TCR) and Texas Central Partners, LLC (Texas Central)
- ▶ Texas Central will be the ultimate builder and operator of the Project.
- ▶ RRIF and TIFIA loans
- ▶ 10,000 jobs each year over the project's 4-year construction
- ▶ 750 full-time jobs to support the railroad's operations.
- ▶ 36 billion dollars into Texas' already booming economy
- ▶ Central Japan Railway Company intends to provide continuous technical support for the system