

Shadow Analysis

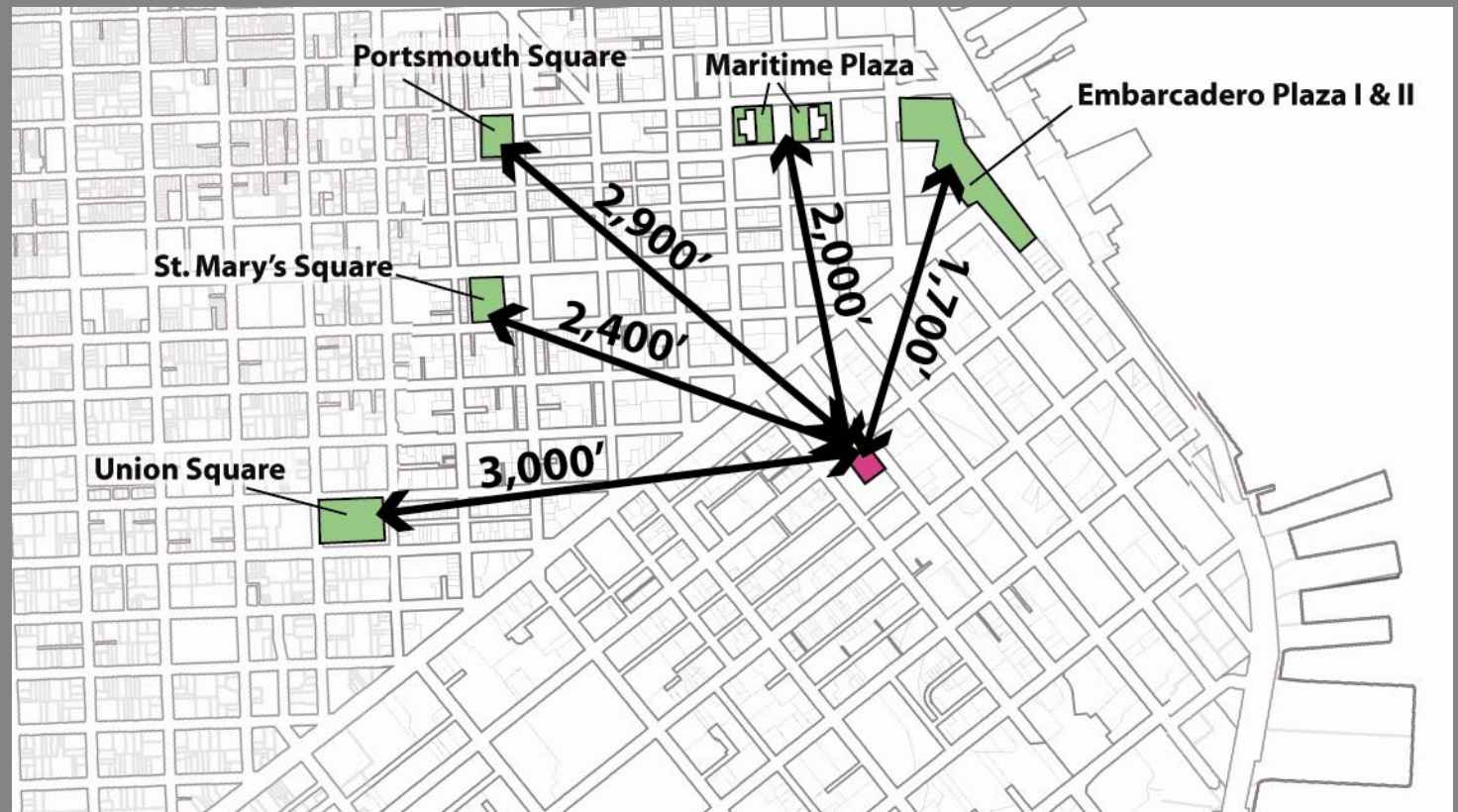


Key Open Spaces of Concern and Investigation



SAN FRANCISCO
PLANNING
DEPARTMENT

Shadow Analysis



Distances from Transit Tower to Open Spaces



SAN FRANCISCO
PLANNING
DEPARTMENT

Shadow Considerations

Shadows reach these distant parks only in early hours in certain months when the sun is low in the sky and lines up precisely with the towers.

As a result...

- Shadows **sweep quickly** through the spaces and generally last for ***no longer than 15-45 minutes***
- Different parks would be affected in different months – generally only one or at two parks can be affected during any one particular day.
- Because the parks are such a far distance from the buildings, the shadows are ***more diffuse than if the buildings were close-by or immediately adjacent to the spaces.***
- Transit Center and District Plan would add ***over 6 acres of new public open spaces.***

Early Qualitative Analysis

Embarcadero Plazas

Potentially affected in late November through early January in the mid-to-early afternoon.

**** Transit Tower:** At 1,000' in height, Tower's shadow would reach a very small portion of one section of available sun in the plaza for about 20 minutes, but above 1,000' the shadow would sweep across all of the pockets of available sun in the plaza for over an hour and could reach across the Embarcadero to the Ferry Building.



SAN FRANCISCO
PLANNING
DEPARTMENT

Early Qualitative Analysis

Union Square

Potentially affected in mid-April through May and mid-July thru mid-August for some portion of the time between 7:00-8:00 a.m.

Shadows from Transit Tower and nearby building at 1st/Mission would pass through the northwest and southwest corner of Square.



SAN FRANCISCO
PLANNING
DEPARTMENT

Early Qualitative Analysis

St. Mary's Square

Potentially affected in mid-February through mid-March and mid-September through mid-October for some portion of the time between 8:00-9:00 a.m.

Shadows from Transit Tower and nearby building at 1st/Mission could pass through the southwest corner of Square.

****1st/Mission site:** Shifting the tallest building on the site to the Mission Street side of the site (from further north on 1st Street) and limiting its height to under 900' would eliminate shadows on St. Mary's Square from buildings on this site.



SAN FRANCISCO
PLANNING
DEPARTMENT

Early Qualitative Analysis

Portsmouth Square

Potentially affected in January and mid-November to early-December for some portion of the time between 8:00-9:00 a.m.

Shadows from Transit Tower and nearby building at 1st/Mission could pass through most of the Square.

****** Shifting the Transit Tower to the east side of its site would reduce some of the shadow it would cast on Portsmouth.



SAN FRANCISCO
PLANNING
DEPARTMENT

Update of Shadow Analysis Methodology

Technical Memo to be completed in the next few months regarding:

1. Accuracy

Uncertainty/Margin of Error: Current standard of “de minimis” shadow is potentially smaller than actual margin of error of the models themselves

Refraction: How to consider the blurring of long shadows in the atmosphere?

Sun: disc vs. point source; results in shadows of varying densities and blurred edges.

2. Significance

Shadow density: At what point is a shadow so diffuse as to be imperceptible?

Opacity of materials: How to consider glass screens and other transparent materials that do not block all sunlight?

Historic Resources



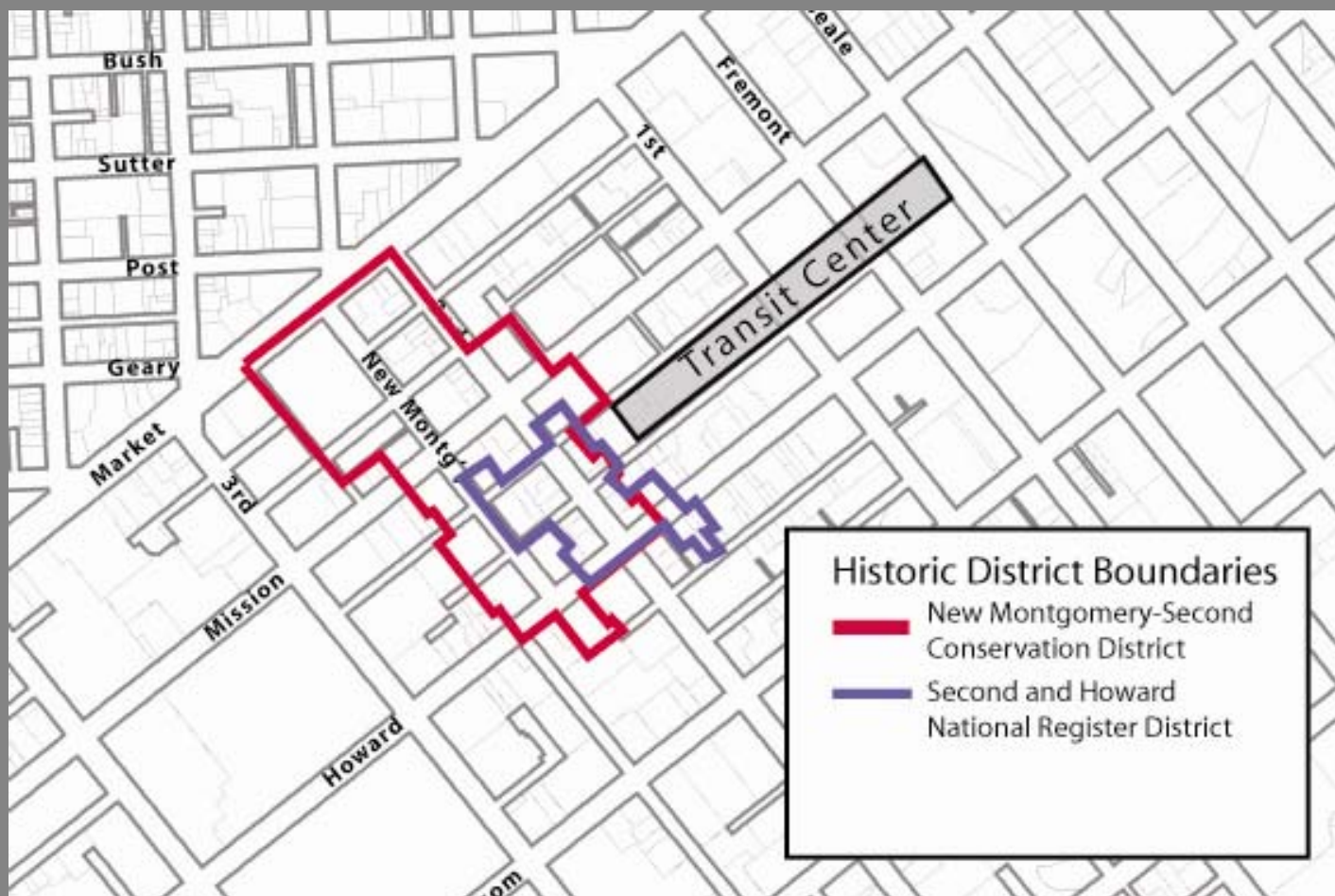
SAN FRANCISCO
PLANNING
DEPARTMENT

Existing Historic Districts



SAN FRANCISCO
PLANNING
DEPARTMENT

Existing Historic Districts



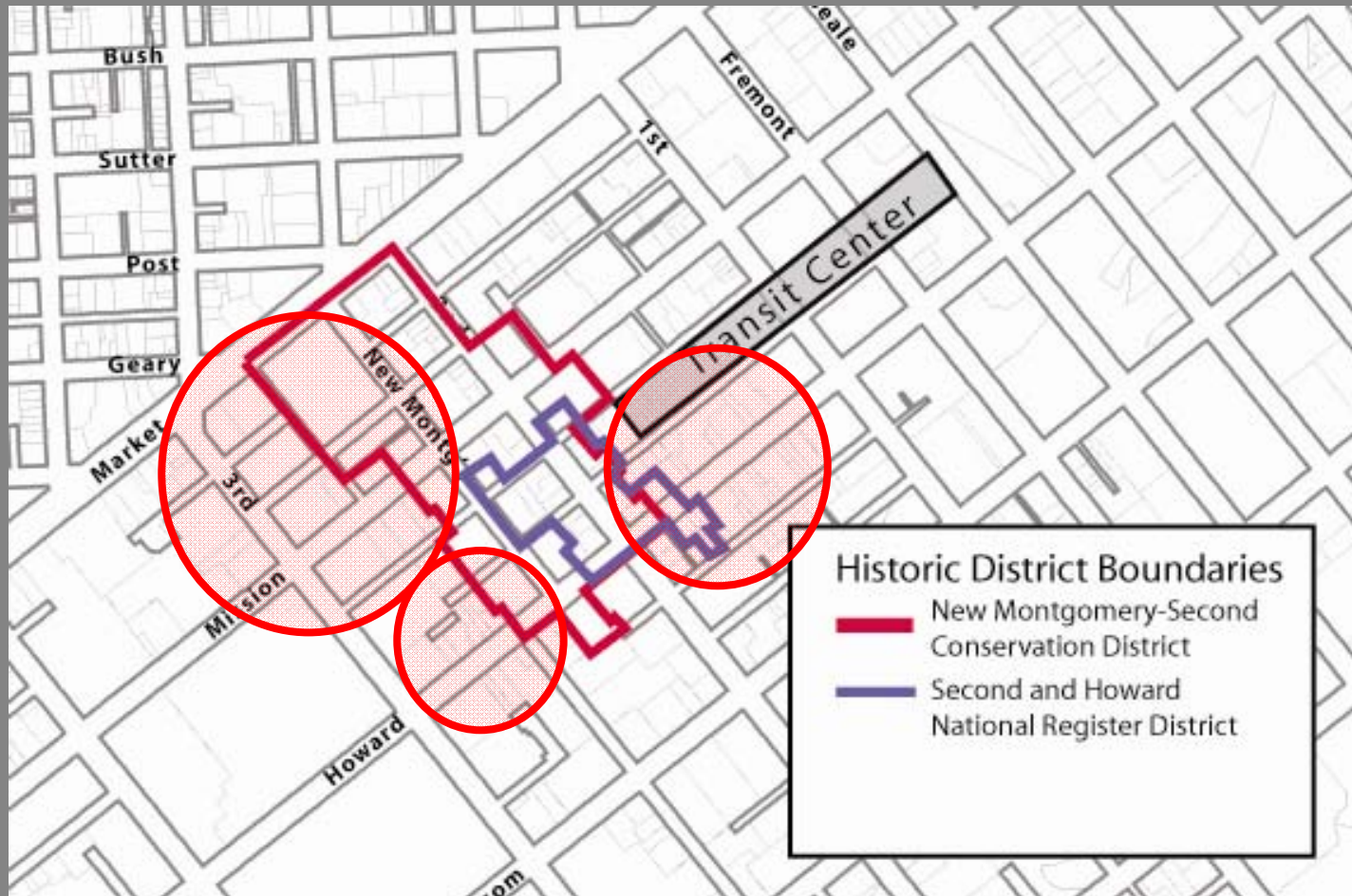
SAN FRANCISCO
PLANNING
DEPARTMENT

Historic Survey Area



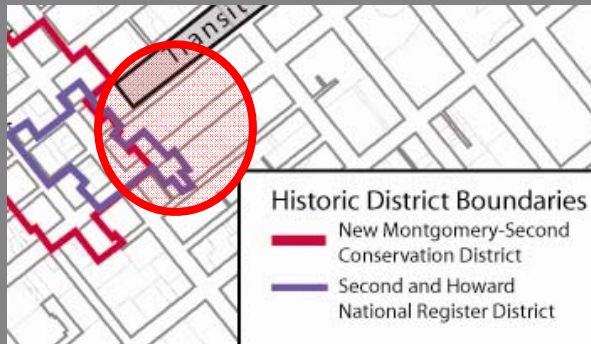
SAN FRANCISCO
PLANNING
DEPARTMENT

Areas of Examination for Potential District Expansion



SAN FRANCISCO
PLANNING
DEPARTMENT

Howard Street between 1st and 2nd Streets



South side of Howard Street

Mission Street between New Montgomery and 3rd Streets



SAN FRANCISCO
PLANNING
DEPARTMENT

South side of Mission Street

Howard Street between 1st and 2nd Streets

Potential Expansion of New Montgomery-2nd St Conservation District

- Article 11 Rating of individual buildings (Category 1-5) in expanded district

Protection of individual resources not in Conservation District

- Article 11 Rating (Category 1-5) and/or Article 10 Landmark Designation



Other considerations:

- Ability of building owners to sell Transferable Development Rights (TDR)
- Potential adjustment of height limits
- Design guidelines within Conservation District

SAN FRANCISCO
PLANNING
DEPARTMENT

Other Urban Design Issues (upcoming workshops)

- Tower Bulk/floorplate
- Ground floor design and uses
- Podium/streetwall interface
- Materials
- Pedestrian circulation
- Building open space requirements and public amenities



SAN FRANCISCO
PLANNING
DEPARTMENT

Ground Level Wind Analysis

Wind analysis to be completed within coming 2 months.

Preliminary testing, including all projects filed with Planning Department to date, indicates that there are no wind hazard exceedances at 1st/Mission in the heart of the Plan area (adjacent to the Transit Tower).



Further testing will be done for the current proposed heights and throughout the entire plan area.

Balancing Objectives and Public Values

Regional sustainability and **Increasing Capacity** to reach Smart Growth Goals

Raising revenue for Transit Center and public infrastructure

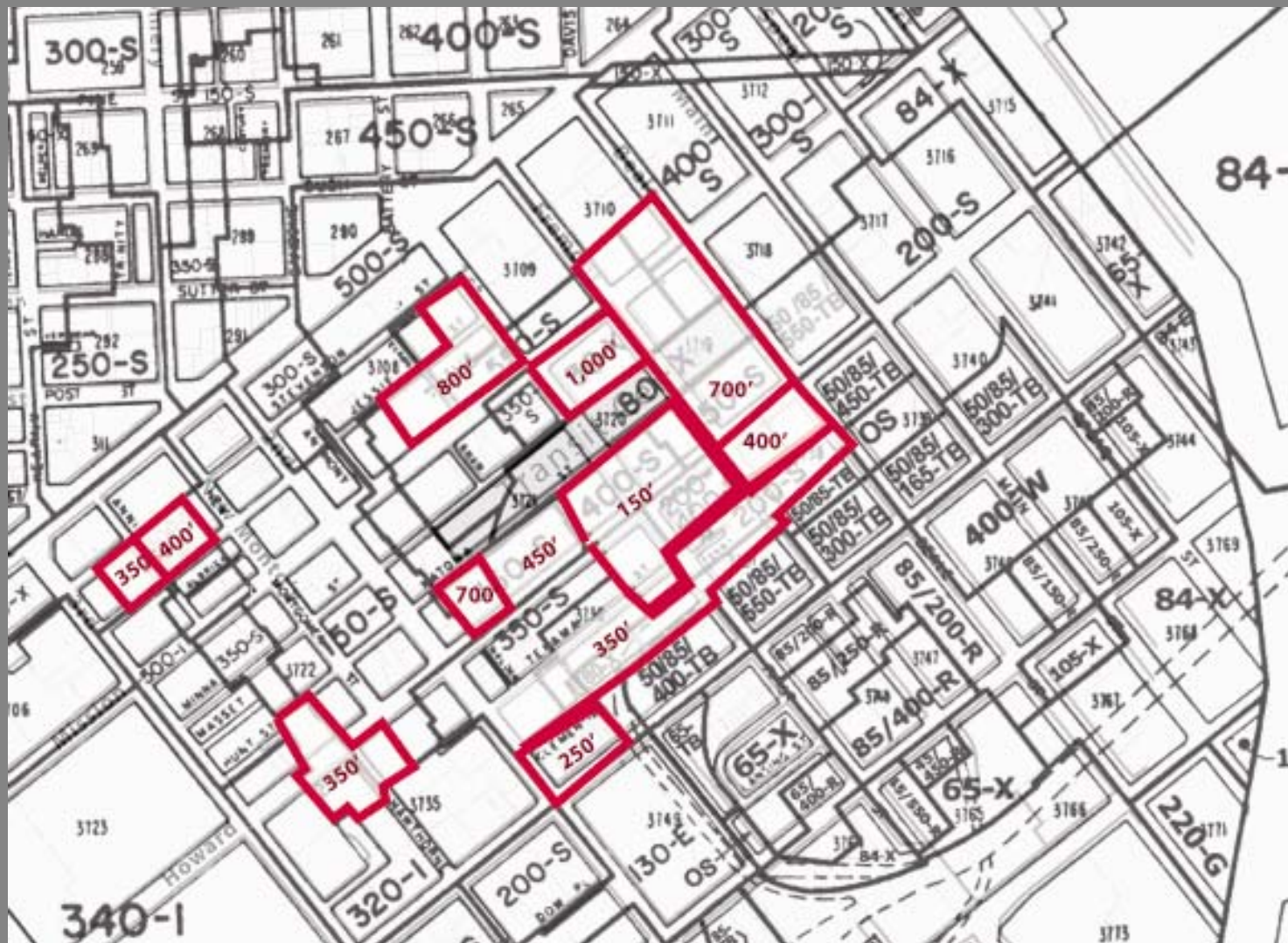
Elegant urban form, skyline and views

Moderating shadow impacts on public spaces

Protecting **historic resources**



SAN FRANCISCO
PLANNING
DEPARTMENT



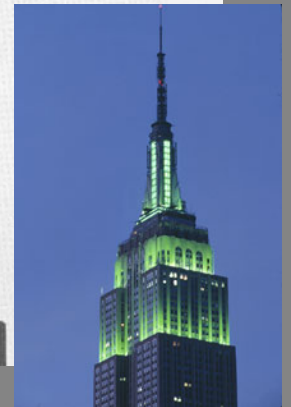
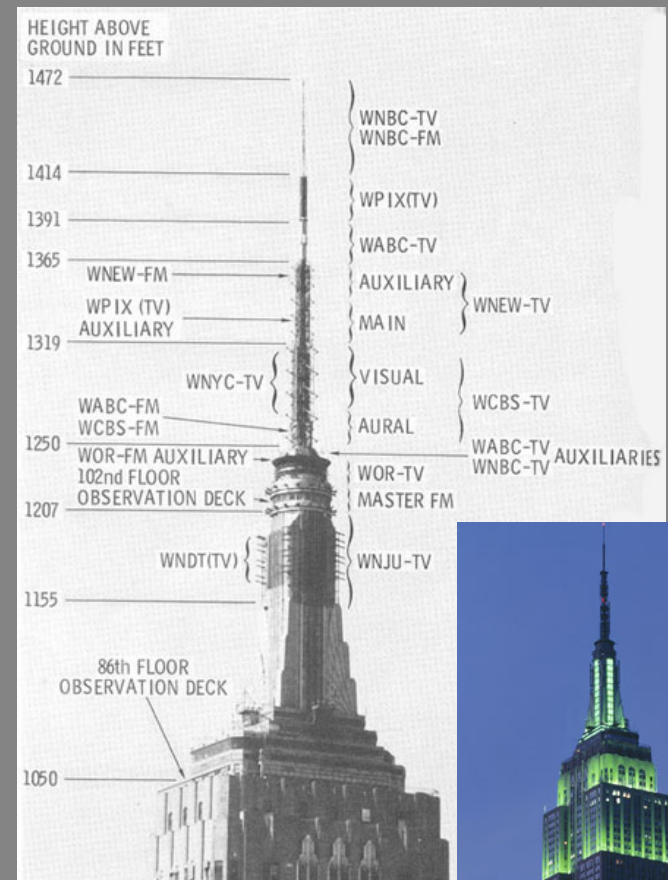
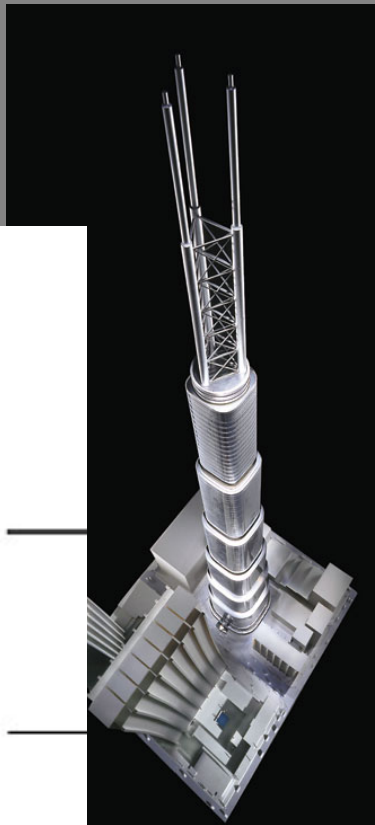
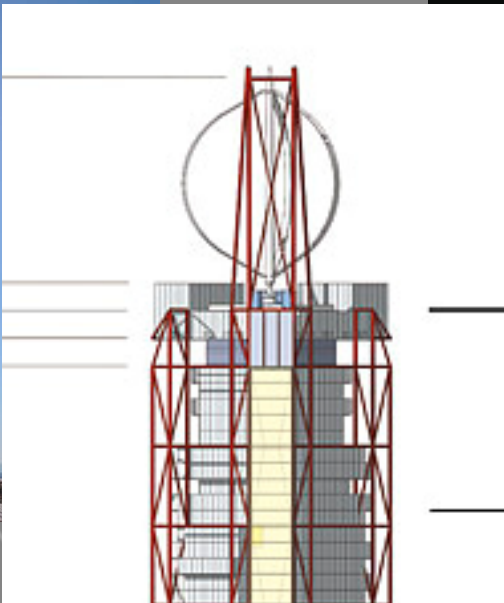
A detailed map of a city grid with various zoning codes such as 300-S, 400-S, 500-S, 84-X, 200-S, 400-W, 85/200-R, 105-X, 340-I, 320-I, 200-S, 85/200-R, 105-X, 3769, 3764, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3779, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 3787, 3788, 3789, 3790, 3791, 3792, 3793, 3794, 3795, 3796, 3797, 3798, 3799, 3800. A large area is outlined in red, indicating the potential expanded historic district. Within this red boundary, there are several smaller areas outlined in blue. The map also shows street names like POST ST, HOWARD ST, and others. A text box at the bottom right contains the following information:

Potential expanded historic district:

- enable sale of TDR up to current potential
- analyze height limits further to preserve scale and character of district

Height Limits & Shadows: Building Tops

Create light, transparent sculptural vertical expression to terminate Transit Tower (above 1,000' height limit) to enhance skyline expression while avoiding casting shadows



Current Urban Form proposal



Current Urban Form proposal



Current Urban Form proposal



Buildout Potential

	Net Additional Space	Increment over Existing Zoning
Office Space	5.82 million gsf	+2.54 million gsf
Housing Units	1,350	+235
Hotel Rooms	1,370	+425
Retail Space	85,000 gsf	--
	<hr/>	<hr/>
Total Space	9.2 million gsf	+3.52 million gsf



SAN FRANCISCO
PLANNING
DEPARTMENT

Potential Public Revenue

Rough estimate of additional revenue for Transit Center and other public improvements, based on current projected buildout

Mello-Roos District

\$152-\$220 million*

Other revenue additions:

Increased land sales value (TJPA parcels only)

Increased Tax Increment (Redevelopment Area)



Complete analysis and discussion of revenue plan, mechanisms, and public improvements in upcoming workshops

Notes:

*Range depending tax rate, net of cost of funds and land discount on TJPA parcels.

SAN FRANCISCO
PLANNING
DEPARTMENT